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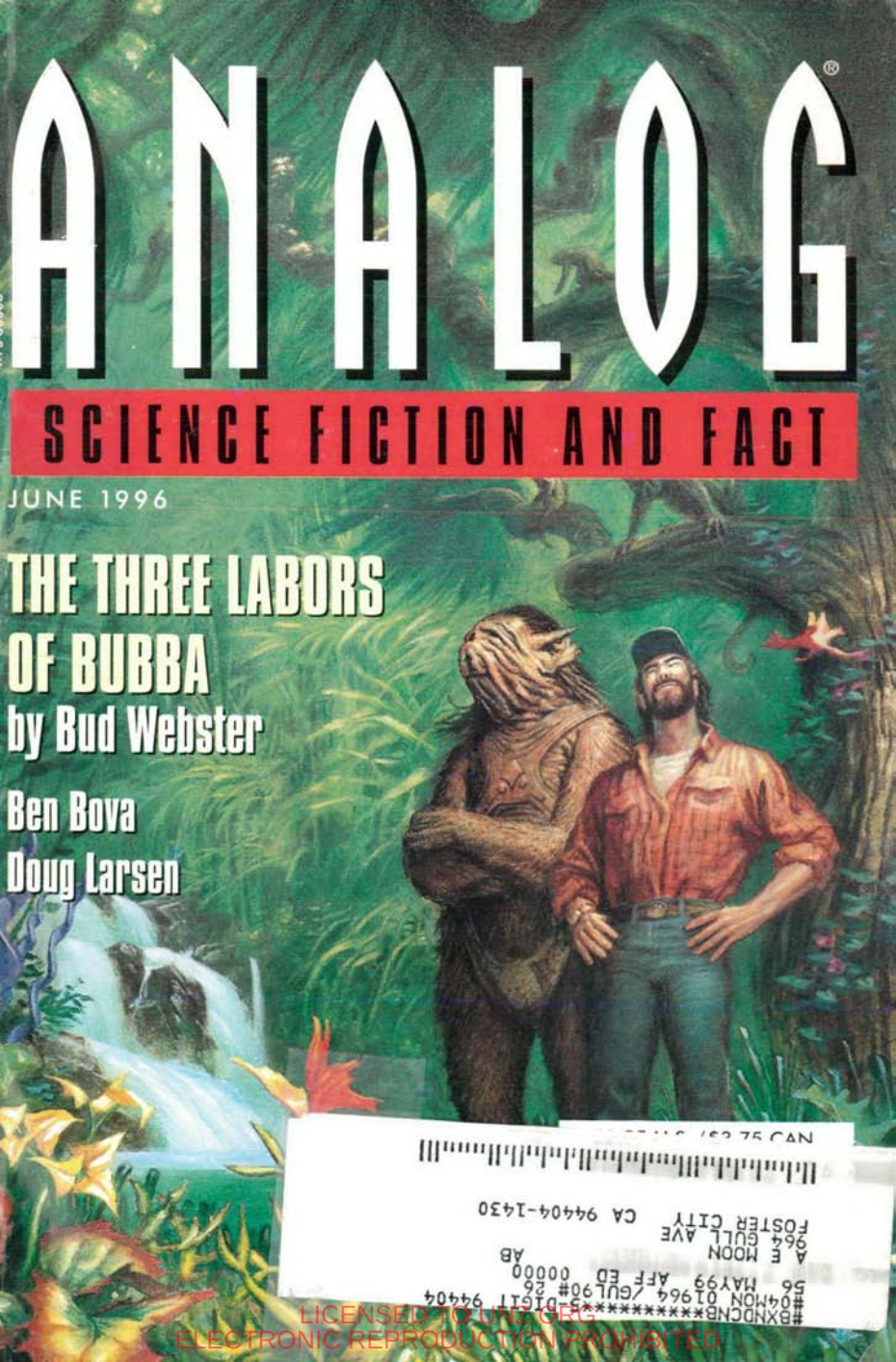

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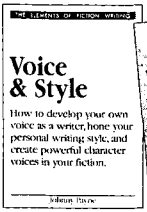
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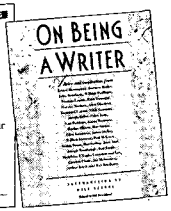

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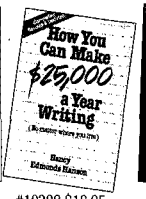

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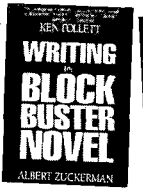

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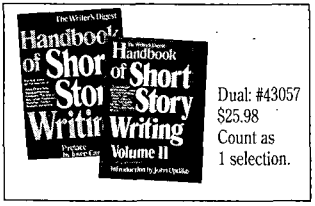

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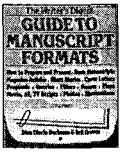

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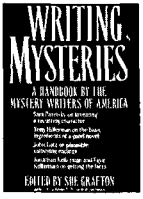

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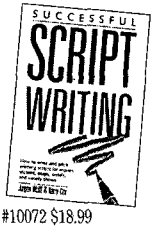

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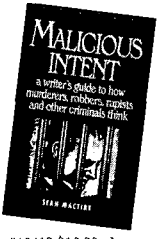

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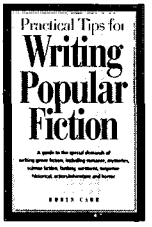

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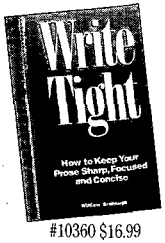

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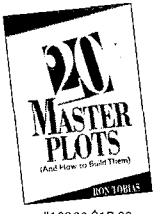

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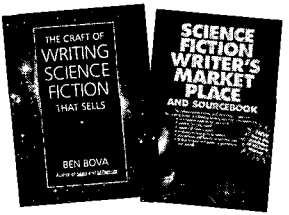

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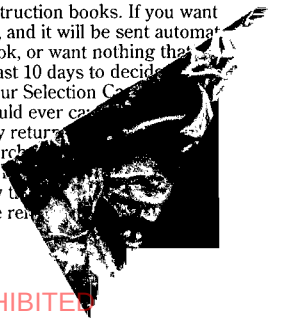

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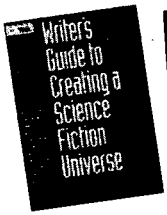

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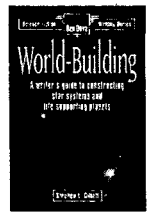

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10

84

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Novelettes

THE THREE LABORS OF BUBBA, Bud Webster ____ 10
WRONG-HANDED, John Vester ____ 84

Science Fact

EXTRATERRESTRIAL LIFE: A NEW ERA BEGINS, Ben Bova ____ 60

Short Stories

THE CONTENT OF THEIR CHARACTER, Doug Larsen ____ 68
APPOINTMENT IN SINAI, Ben Bova ____ 116
FLUFFY, Jeffery D. Kooistra ____ 134

Probability Zero

ALWAYS, THERE'S SOMEBODY DOESN'T
GET THE WORD, Dean McLaughlin ____ 57

Reader's Departments

THE EDITOR'S PAGE ____ 4
THE ALTERNATE VIEW, G. Harry Stine ____ 112
THE REFERENCE LIBRARY, Tom Easton ____ 145
IN TIMES TO COME ____ 152
BRASS TACKS ____ 153
UPCOMING EVENTS, Anthony Lewis ____ 160

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UNLICENSED PRACTICE

If your car's brakes were failing, who would you want to diagnose and repair them: your favorite mechanic, or his bookkeeper?

If you answered "bookkeeper," please remind me not to ride with you. Like many people who've thought about it, I have a rather firm conviction that important decisions requiring specialized expertise should be made by people who *have* that specialized expertise. I know this opinion is widely shared, and often formally recognized by the law. Practicing medicine without a license, for example, is a criminal offense in every jurisdiction I know about.

At least, for individuals.

Corporations, it's becoming increasingly evident, may be a quite different kettle of fish. If I asked you a question patterned after my opening line—"Who would you rather have decide what to do about your chest pains: your doctor or your insurance agent?"—I'm reasonably sure that you would answer, promptly and emphatically, "My doctor." Yet in the maze that presently passes for a health care system in this country, it's growing ever more likely that the most important decisions will be made by your insurance company.

Some examples:

•An orthopedist recommended magnetic resonance imaging to help diagnose a troublesome back problem. The patient's insurance company refused to pay for it.

•A young, active woman broke a foot. Her insurance covered treatment for the fracture, but when the doctor declared it "healed," she could still only walk with a pronounced limp, at a top speed about half normal—a situation clearly far short of a complete cure. Her doctor prescribed physical therapy. The insurance company said they wouldn't pay for it because it was "medically unnecessary" since she could walk across a room by herself. (On appeal, it reversed the decision and did agree to pay—but only under protest.)

•Lest you think these mere isolated cases, this part of the country recently had a highly publicized controversy over the express, blanket policy of certain health insurers of paying for only a single day of hospital care for new mothers and their babies—regardless of how much their doctors thought they needed.

•At a briefing intended to help employees decide which of several medical insurance options to choose, I

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posed the following hypothetical question to a spokesman for one plan. "Suppose I have already been seeing a specialist for an irregularly recurring condition, and am under standing instructions from him to come in once a year for a check-up. This specialist is on your approved list. If I switch to your plan [in which specialist visits are supposed to happen only on referral by a 'primary care physician'], do'I really have to make an extra visit to a general doctor every time I want to go for one of the specialized check-ups I already know I need?" The answer was, in essence, "We might be able to work out a 'standing referral,' depending on the circumstances of the particular case; but we [the insurance company] would certainly want to review it."

In each of these individual or collective cases, a medical decision—a kind of decision people spend years learning to make—was being made by an entity having neither that specialized training nor familiarity with the patient's medical history. You might argue that the insurance company wasn't *really* making a decision about how to treat the patient, but only about who should pay for it. If the patient is determined to have the treatment, he can save his pennies and pay for it himself.

Sure, if the ailment in question is, say, a hangnail. For more serious and complicated matters, in case you haven't noticed, various factors that would take me too far afield have made medical care so expensive that many people *can't* afford much of it on their own. Whether this is a desirable, perhaps character-building, state of affairs is a question I don't plan to get into. The important fact for now is that, rightly or wrongly, a decision about whether an insurance company will pay for a treatment is *de facto* a decision about what treatment a patient will receive—that is, a medical decision.

You might also argue that such decisions are not actually made by "companies," but by individuals or groups of individuals who work for the companies, presumably operating within strict policy guidelines. Doesn't my argument fall on its face if those decision-makers *are* doctors (who happen to be employed for that purpose by insurance companies)?

Not really. In the first place, I strongly suspect (though I admit I haven't proved) that they seldom *are* doctors. In at least one case that I

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have some familiarity with, at least the original decision seems to have been made routinely by a nurse. If sometimes the insurance company's arbiter *is* a doctor, that may technically take it out of the category of "practicing medicine without a license," but only technically. There's still something crucial missing from the picture. Why should a doctor who hasn't even met the patient be able to overrule one who has?

As for decision by committee, I realize that in principle a committee is supposed to make better decisions than an individual by having several individuals compensate for each other's blind spots and biases. In practice, it is not for nothing that someone once observed, "A camel is a horse that was designed by a committee."

No, folks, I've looked at all these angles and they keep leading me back to my original position: The person best qualified to make a medical decision is a competent, conscientious physician who is thoroughly familiar with the patient and his or her problem.

"Ah," you (or an insurance spokesman) may say, "there's the rub: Not all doctors are equally competent and conscientious. Some haven't kept up on their skills, and some have become too lazy to put as much thought into every case as they should. Why, some have even been known to try to bilk insurance companies! That's why we need someone to oversee them and make sure that they're really doing what the patient needs."

I'm with you all the way up to the last sentence, but there we part com-

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Death Between the Covers

MURDER BY THE BOOK

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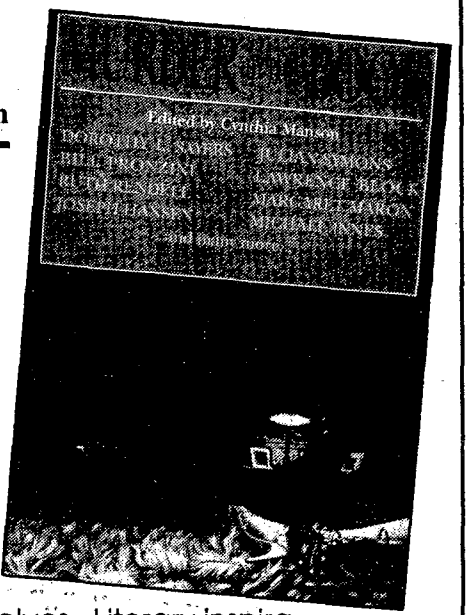

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pany. Of course not all doctors are equally good or honest. Can you think of *any* field in which all practitioners are? Yes, patients need to try to pick a doctor who is good for them, and that isn't always easy. Most of us appreciate all the help we can get—but many of us do *not* want someone else making the decision for us, even to the extent of allowing us to choose from a short list they provide.

And we certainly don't want people who know finance but not medicine making our medical choices primarily on the basis of cost. Yes, costs must be considered and controlled (and I do appreciate the insurers' need to protect themselves against doctors who pad their bills). But the patient's needs—which are a highly individual matter—should be considered *first*. The treatment given should be the *best* treatment that can be afforded. Somehow, it seems, the cart has been allowed to overtake the horse.

Part of that problem, I think, can be seen in a recent fashion among hospitals for telling their employees to think of patients not as "patients," but as "customers." There can be some value in this, if the object is to remind them that patients are paying for a service and deserve to get what they're paying for. But there's also a danger of thinking of them primarily as sources of revenue. Maybe everybody needs to be reminded that they are *both* patients and customers. They are *primarily* patients: people who need their medical problems solved. Incidentally to that, they are customers who provide revenue for the caregivers—and in that sense they are customers who deserve their money's worth.

The emphasis *may* be beginning to shift back to where it belongs. In some areas, groups of physicians have begun to form their own Health Management Organizations, with the accountants working for the doctors instead of vice versa. Dr. David Finley, the president of one such network in the New York area, was quoted thus by Gannett newspapers: "We feel we're in a better position to make decisions on patient care than someone in an office in an executive position. In a traditional HMO, the business people make the decision, and the physician has input. I'd rather see a health-care decision rest on a physician advised by business people, rather than the other way around."

Which sums it up very nicely, I think. The physician-operated networks *will* need advice from business people, because they face quite considerable financial and legal obstacles to make their venture work. But they're so clearly on the right track—trying to get the "advice" flowing in a more appropriate direction—that I, for one, very much hope they *will* make it work. ■

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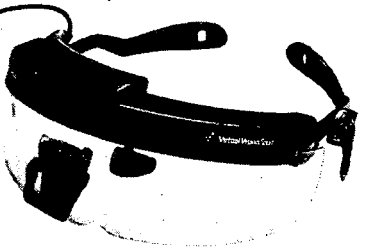
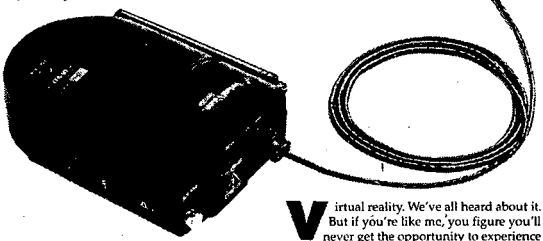
Virtual Reality technology creates the world's first portable big-screen television

Breakthrough portable TV from Virtual Image Displays, Inc. creates a virtual image that simulates a 60" big-screen image at a distance of six to 15 feet away.

by Timothy B. Arnett

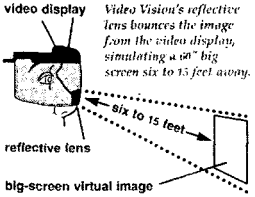




VIRTUAL TECHNOLOGY

How does Virtual Vision Sport create a virtual image that floats in space? Within the eyeware is a miniature video display and a sophisticated reflective optical system. Part of the optical system is a small, specially-engineered reflective lens which is mounted slightly below your normal field of vision on your dominant-eye side. (Your brain gives priority to whatever image is viewed by your dominant eye, so the image will *seem to appear in both of your* eyes. See the inset box at the right to determine which eye is your dominant eye.) The lens bounces the video image from the video display so that it appears to be focused a comfortable distance (about six to 15 feet) in front of you.

The Sport eyeware is easy to wear, and it lets you see your environment as well as the TV image.



Video Vision's reflective lens bounces the image from the video display, simulating a 60" big screen six to 15 feet away.

Virtual reality. We've all heard about it. But if you're like me, you figure you'll never get the opportunity to experience it in your lifetime. Think again! The Virtual Vision Sport 200 is a breakthrough invention that uses virtual reality (VR) technology to bring big-screen virtual images to a portable TV.

Virtual Vision Sport is the ultimate portable television. You can wear it on the beach, in the gym, wherever you want. And because the TV image is part of the eyeware, *it moves with you.* With the Sport, you can maintain your active lifestyle without missing your favorite shows!

How it works. The Sport's portable battery-operated tuner picks up TV signals from the airwaves and transmits images to a miniature LCD video display in the eyeware. The image is reflected to your dominant eye, resulting in a floating virtual image that appears to be a comfortable distance away. The farther away you focus your vision, the larger the image appears. Special color optics provide projection TV-style imagery. The eyeware contains a pair of high-fidelity earphones. It also comes with an AC adapter for indoor use!

Monocular technology. The Sport uses monocular technology to create the virtual image. While your retinas are presented with different images, they are not so different that the brain can't fuse them together. The process of fusing two slightly different retinal images into a single picture with depth, called *stereopsis*, is the way most of us see the world around us.

VR, only better. Ordinary VR equip*ment is cumbersome* and uncomfortable. Plus, the dual video displays used in VR can confuse the visual system, resulting in eyestrain and *binocular dysphoria*, a defect in depth perception that can last for hours.

The Sport is different. Weighing a mere five ounces, you will forget you're wearing it. And because you see your environment *and* the virtual image, eyestrain is minimized and depth perception is unaffected.

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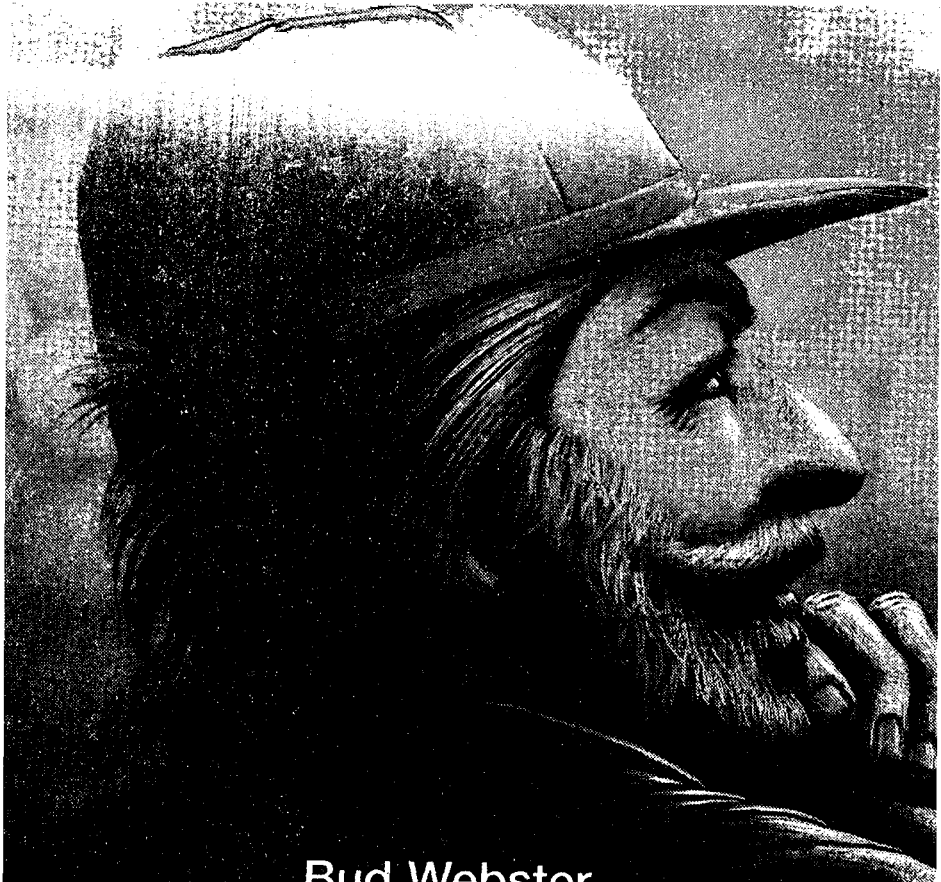

Bud Webster

THE THREE LABORS OF BUBBA

Somebody who gets a reputation for one job well done can expect calls for more. . . .

Illustration by Alan M. Clark

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"This is, you realize, complete hogwash." The voice came from a small box propped against a telephone on the only flat surface in the room not covered in books. "*Space, Gravity, and the Flying Saucer*, indeed. There's no actual craft in my records that looks or operates like anything in these diagrams."

"Doubtless, Mike, but ain't it wonderful hogwash?" Bubba tapped his finger against the cover of the book in question. "It's a valuable addition to the SauNA database."

Bubba Pritchert, gentleman mechanic of Virginia and president/founder of the Saucer Nuts of America, had created something of a clearinghouse for pre-1965 UFO literature. In an attempt to document the early days of the saucer craze, he had begun accumulating books, magazines, and smearily mimeographed pamphlets by the hundreds; some were found through antiquarian book dealers (who were delighted to be shut of them), but most came from the SauNA membership. Eventually, he bought a scanner, and began setting up an on-line library that could be accessed by anyone.

"Leonard Cramp was a crackpot," Mike replied, "with an intuitive grasp of the fundamental pseudo-scientific method: propose a conclusion, and then tailor the facts to fit. Somehow I expected your Saucer Nuts of America library to be less . . . speculative."

Bubba shrugged. "Hey, you wanted to read this stuff. Besides, until you came along, speculation was all I had. Personally, I think you just like to argue."

"A battle of wits with a human? And one only half-armed, at that? Hah."

Glancing around idly, Bubba muttered, "I wonder if that bulk eraser would work on an artificial intelligence. . . ?"

"Just kidding," Mike said quickly.

Bubba grinned savagely. "Thought you might have been."

It had been raining in Central Garage for two days, while a storm made up its mind whether or not to amble away off the coast of Virginia. Those residents not yet disconnected from the power grid had the odd blink of electricity, but Chez Pritchert remained up and running throughout, drawing energy from a GreenHouse™ fusion generator. Bubba had been carefully cleaning the lens of a charge-coupled device when the conversation started.

"Seriously, Bubba," said Mike, "How much credence do you put in this stuff?"

"Well, I'll tell you, Mike. Most of this is pretty improbable, knowing what we know about the planets in the neighborhood. I just never thought that the only data you needed to make up your mind about something was the evidence that supported your contentions." He picked up the lens and began polishing it again. "Now, I believe that Cramp believed what he was writing about, but the mechanical problems alone—"

"Just a second . . . just a second. . . ." Mike interrupted. "I'm detecting some kind of energy displacement close by."

"Probably just Clint Miller's milch-

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cows venting methane," Bubba replied. " 'Odorless,' my butt."

"It's electromagnetic, but steady. Not pulsed. Nothing I'm familiar with."

"Hell, I thought you knew everything," Bubba replied, peering out the window at the dark.

"I'm encyclopedic, not omnipotent."

Bubba rose from the desk. "OK, how close?"

"Close. Within 100 meters."

"Well, dip me in dogshit!" Now Bubba could hear the rattling of the corrugated roof over the garage area, whether from the storm or the EM activity he couldn't say.

"Quickly Bubba. Activate the security system-rear cameras."

"You got it." Bubba scrambled to slap the switches that connected Mike to the backyard surveillance cameras. "What's up?"

"Not up, down. In your backyard, to be precise. Unknown vehicle, possibly a scoutship—not a deep-space craft. No bigger than a van. How it got here is beyond me. Sorry, Bubba," Mike continued, "it took out the cherry tree."

"Damn! What the hell's goin' on, Mike?"

"I can't answer that. Save your questions for the occupant—it should be at your back door about now."

"Huh!" Bubba grunted as his kitchen door shook under a single blow. "Is it dangerous?"

"Had it wanted to come in uninvited, it would simply have eaten the door; it's *big*, Bubba."

Bubba reached out and gingerly turned the knob. Standing well out of the way, he pulled the door open.

The doorway was filled from side to side as well as top to bottom, the body of the alien blocking what little light came in from outside.

"Are you . . . Bubba Pritchert?" it asked in a deep and husky voice.

"Uh . . . yeah, I am."

"I have come . . . quite a long way. I need your help very badly." It swayed, then began crumpling at the knees. The smell of wet fur filled the room.

Hastily, Bubba said, "Would you like to sit down?"

Still swaying, the alien nodded slowly. "That would be preferable to collapse, yes."

Bubba backed away from the alien until his hip bumped the desk.

"It would seem," Mike said, "that you're having another close encounter."

Bubba said, catching his breath, "No shit, Sherlock."

"Mycroft."

"Whatever."

Feeling behind him with one unsteady hand, Bubba grabbed his chair, eyes never leaving the furry creature standing shakily not fifteen feet away. He swallowed audibly.

"I *knew* I shouldn't have painted 'STOP AND BE FRIENDLY' on the goddamn roof," he said as he carried the heavy chair to the kitchen. The alien sat carefully, but gratefully, closing its eyes in near-exhaustion.

"I doubt it could have read it, even if you had," Mike replied. "Although it does appear that it came looking for you."

"Oh, *bad* choice of words, Mike.

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That's what guys named Nunzio do when you lose at the track!"

"'Sought you out'?"

"Better." Bubba took a deep breath. "Well, we let it in the house. What the hell do we do with it now?"

"Bathe it?"

Bubba glared at him. "*You* wanna clean out the drain?"

"I was joking. *I* can't smell wet fur, but you can."

"Yeah, well, that's the least of my worries."

"I suspect that it will tell us why it's here once it catches its breath. In the meantime, disconnect the outside cameras. There's nothing more to be seen out there."

Bubba turned off the outside cameras. "Oh, no, not a thing," he muttered. "Just a broke-down cherry tree and another goddamn flying saucer, is all. Hell, nobody'll notice that."

"Hmm. There is that. You'll have to cover it; the garage bays are full."

"Great. Hope I've got a tarp big enough." He left through the still-open door, grabbing a jacket off a hook on his way.

The wind had died down considerably, so spreading the tarp was less of a problem than it might have been. Boxy and angular, the ship reminded Bubba of photos he'd seen of stealth aircraft; with that configuration it looked like it might be radar-invisible, but on the ground next to a splintered tree, it would be as conspicuous in the light of day as a hearse at a birthday party.

He staked the tarp to the ground and returned to the house.

"Right, that's done. What now?"

"Is the filter ready? This is a perfect field-test." Several weeks previously, Mike had acquired a tunable liquid-crystal filter from a correspondent at JPL. A fellow-SauNAn and master solder-jock had rigged it to work with a ccd from an old surveillance set-up; Mike could switch wavelengths to cover the visible spectrum and then some, giving him full-color, if monocular, vision.

Bubba plugged the filter and lens in place and set Mike on a shelf where he had an unobstructed view of the alien.

Aside from being covered in fur, it was wearing a harness made from a synthetic substance, plain and undecorated except for some sort of insignia or badge where it crossed its broad chest. The alien's face was mostly hairless and wrinkled like a shar-pei's, with a single nostril.

"Well, I can identify the species, at least," Mike said. "He's a Thunt."

At this, the alien opened its eyes and looked from Bubba to Mike in interest.

"All I know," Mike said after deliberation, "is that they are a forest-evolved species, intelligent and sophisticated. One inhabited planet, one mining colony. I don't know much more about them; they didn't fall within the sphere of the Parliament's interest, and we had little reason to communicate with each other. They don't travel much outside their own system, and *never,* in my experience, this far from home."

Bubba sighed. "Musta had a reason to, then, and I doubt we'll like it much."

The chair creaked warningly as the

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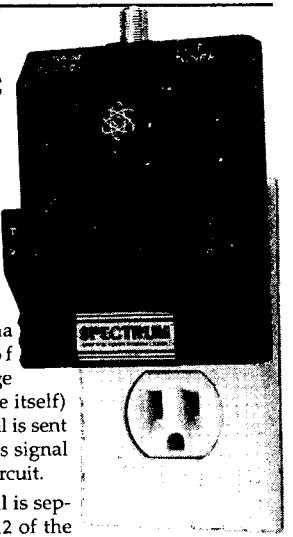

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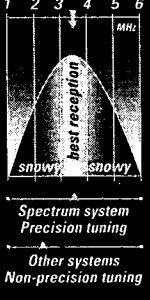

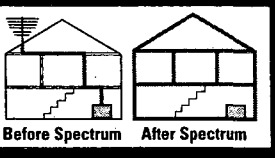

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alien began to stir. The alien's eyes were buried deep in the folds of his face. Clear and brown, they met Bubba's without blinking. Whatever else was true, the alien was certainly intelligent—highly so, if Mike's comment about the ship's range was valid.

Bubba broke the silence.

"Wanna beer?" he said, his voice steadier than his hands. "I'm partial to Anchor Steam m'self, but I got some imported stuff, too."

There was an answering rumble as the alien cleared its throat. "I understand 'beer.' Yes, that would be pleasant."

"You got it." He walked into the kitchen, past the figure on the floor, and got two bottles out of the refrigerator. "Glass?"

"No. Thank you."

"Ah, a *real* man. Here y'go."

The alien looked quizzically at the bottle, then at Bubba.

"Just twist the top off, like this." Bubba opened his bottle and took a drink. The alien tried to copy the movement and twisted the neck off the bottle, spilling beer on himself and the floor.

The effect of this was immediate; he leapt up and began furiously brushing at himself.

"Hang on, big fella," Bubba said, tossing him a towel, "use this."

The alien caught it in midair, then gingerly mopped at the beer. "I am sorry," he said in agitation. "I must . . . do you have somewhere I can wash myself?"

After a moment's thought, Bubba said, "Through that door," pointing to the entrance to the garage.

"I must say," Mike said quietly as the alien stepped toward the door, "you seem to be taking this very well."

"You kiddin'?" Bubba replied out of the corner of his mouth, "I'm *this* close to losin' m'fudge, but I've got a guest to see to."

He followed the alien out into the garage area, instructed him to stand over the drain and strip off his harness. He then handed him the hose and explained how to use the spray nozzle.

While the alien was busy washing himself, Bubba (trying hard to hold his breath) took the one-piece garment, rinsed it out thoroughly in the basin, then threw it in the dryer.

When the alien was finished washing, he showed him the hot-air gun; in moments, the odor of wet fur was gone, and the large creature, made even bulkier by the blow-dry, sighed in relief.

"Better now?" Bubba asked, grinning.

"Yes. I am much distressed that I soiled your floor. We are . . . I do not like to be soiled."

"Don't fret, kitchen floors always need mopping—especially the way *I* cook." Just then a buzzer sounded; the harness was dry, and the alien gratefully put it back on and reattached the badge.

"So, you're a Thunt," Bubba said casually as they went back into the kitchen. He opened another beer for the big alien, who sat gingerly in the chair.

The alien thought for a moment. "I am a Thunt, yes," it said, looking from Bubba to Mike, "although I am not

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sure how you knew this."

"Right. Well, that toaster with the attitude over there is an artificial intelligence I picked up in a swap with a couple of good ol' boys who were having engine trouble." He looked back at the alien. "He's not from around here, but he's a real square little feller. Well, rectangular, anyhow. Don't be *too* impressed, though; he's just encyclopedic, not omnipotent."

The Thunt nodded. "An Intelligence. We have those, although the configuration is different. My name," he said, "is V'rinn, son of Bish, son of Prath, son of Lan, daughter of Leens, daughter of Stel, son of Rinn."

"Well, *that's* a mouthful. So, what brings you to the Commonwealth of Virginia?"

"Your name is known to me from two functionaries of the Nishian Parliament, for whom you did a service. The 'good ol' boys' you mentioned, undoubtedly. They spoke to me of you at a refueling depot near Thuntun."

Bubba shrugged. "Yeah, well, I was always real popular at the truck stops."

"I have come in hope that you can aid me as you did them. I am guilty of what my people consider a serious crime, one which I am unable—and unwilling—to correct, and for which I stand to lose a great deal."

"Seems like a pretty harsh thing to do for making a mistake, old son. You fool around with the King's daughter or something?"

"Explain?"

Bubba looked slightly flustered. "Well, what I meant is . . . did you make an attempt to seduce. . . ?"

"I understand," the Thunt interrupted, shaking his head. "No. Our body chemistry isn't geared for recreational coitus."

"Hmmm. Break a law, then?"

Now it was the Thunt's turn to look uncomfortable. "The laws of Thuntun are complex and harsh, but based on a single principle: Do Not Shame Your Progenitors."

"And I guess you've done something that embarrassed your folks?"

The Thunt didn't reply for a long moment. Eyes on the floor, he nervously picked at his harness.

"The opinion of the Full Council, as handed down by the Triad of Governors, was that I had shamed not only my Progenitors, but all of Thuntun as well." The big alien made a strangely meek gesture with one hand. "And," he sighed, "that was the opinion of the majority of my Progenitors, as well."

"Doesn't sound good. What are they gonna do to you?"

"I don't know. Sentence has yet to be passed. Under the circumstances, I thought it best to come looking for help as soon as I could."

"You on the lam?"

"If you mean am I a fugitive, no; they know I'm here, and their determination will be relayed to me."

"Well, hoss, please don't take this the wrong way, but you must have done something pretty hellacious to have your family dump on you."

The Thunt didn't lift his eyes from the floor. "It is . . . difficult . . . for me to speak of it. And yet, you must know, if I am to expect you to help me."

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"Gotcha. You sit and think for however long you need. I'll get supper ready."

Bubba lifted a pot down from the rack above the stove and began throwing things into it.

"So, tell me about this law of yours. I'd think not shaming your parents might be a good way to promote good manners, not to mention keeping the peace. Seems pretty reasonable to me."

"Take it to its logical extreme," Mike said before the Thunt could answer. "Even if one's parents accepted a potentially embarrassing incident, their parents would have to, as well, and *their* parents, and so on. If I recall correctly, the Thunt are *very* long-lived, and families live together on large estates."

The alien nodded. "It is not unusual for there to be as many as five generations under one roof. My own Progenitors," he said with quiet pride, "extend to six."

Mike added, "'Reasonableness' is debatable, considering the potential for emotional damage. It stands to reason that with that much family to keep happy, a large number of offenses could bring about consequences far more serious than any intrinsic harm. I must assume that some never regain their honor, and die indigent and alone—and, possibly, by their own hand."

The Thunt looked a little uncomfortable at this. "There are customs against suicide. It happens, but only in the most extreme cases. Mostly, the Nameless simply go mad." He shrugged heavily. "It's not pleasant."

Bubba shook his head as he chopped an onion. "Not my kind of life, but I'm just a simple country boy."

"The closest analog in human culture is the Amish custom of 'shunning.' And since when were you *ever* a 'simple country boy'?"

"Well, I was raised polite."

"In any case," Mike added, "we can only speculate. What little I know of the Thunt relates primarily to their more public social structure. Any other information must come from him."

"Figures. I 'spect we'd better let you get to the heart of this thing at your own pace," Bubba said, glancing at the alien. "I'm reluctant to pry where I'm not welcome."

"I will share with you whatever information you find necessary," the alien said quickly. "Embarrassment is not an option."

"In the meantime, let's see if we can figure out something about your planet. Mike?"

"'You know my methods. Apply them.'"

"Hate it when you do that," Bubba muttered as he scraped things off the cutting board into the pot. "OK. Long-lived species, limited to one planet, more or less. That means . . . low breeding rate, so's the food don't get all et up. Families can pile up a reasonable amount of wealth in five generations, so nobody's terribly poor." Garlic—*lots* of garlic—followed the onions into the pot.

"Yes," the Thunt said, nodding. "Poverty is unknown on the Estates; it is found mostly among the off-planet miners."

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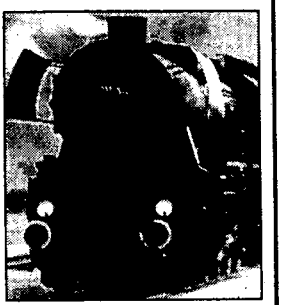

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"Must be a pretty crowded planet with all those old folks around." Beef, beans, and tomato sauce joined the vegetables, and the aroma of spicy chili filled the kitchen. There was a rumbling that could only have come from the alien; apparently, borborygmus is universal.

"Not terribly. We have mechanical ways of limiting the population, as well as a natural estrus cycle."

The pot bubbled merrily as Bubba stirred with a long wooden spoon. "I love it when you talk dirty. Listen, Mike," he said, turning away from the stove, "This is all well and good, but we got the main fount of Thuntic knowledge in here with a bad case of the gut-rumbles. Let's table this until we hairy types have gotten on the outside of some food, OK?"

"Is that what that noise was? I thought the storm had returned."

"It's SOUP!" Bubba yelled. "Last one to the table gets what the littlest pig got."

The Thunt rose, his nostril flaring as he sniffed. He looked in the pot. "This is 'soup'?"

"In this case," Mike answered, "'soup' is a generic term for food. I counted too many habanero peppers for it to be genuine soup."

"Chili, big guy. Just the thing to have on a late night with a beer if you're in trouble with your local Progenitors—assuming you don't mind risking a little indigestion."

The Thunt was standing over his shoulder, whuffling the steam as it rose from the pot.

"Hope you don't mind a little fire in your food."

"I like strong flavors very much. May I ask what is in this?"

"You'll find out. This and that for flavor, sweet Vidalias, a jot of garlic. And with the peppers in there, you might want to taste a bit before you put it down your neck. Wouldn't want you to tuck in without some kind of preparation, lest you spew my six-alarm all over the walls. Don't think the dry-wall would stand it."

Bubba handed the Thunt a large bowl piled high with chili, a serving spoon, and a hunk of sourdough-rye bread.

"Take it on back in the living room. I'll bring you another beer, and we'll watch some TV while we eat, just like you was fambly."

They proceeded to the other room, Bubba carrying Mike under his arm and a tray containing his own food, the beer, and the pot in his hands.

"Give 'er a shot, big fella, and lemme know what you think of good old Virginia cookin'."

The Thunt nodded and tried a bit of the chili. He chewed, swallowed . . . and his face lit up with delight. He dipped his spoon again and again, until the bowl was empty, and then looked hopefully at Bubba.

With a grin, Bubba ladled another healthy dollop of chili into the bowl, added some grated cheddar, and again the Thunt fell to it. Turning the television on, Bubba switched channels until he found a station showing *Destination Moon*. The Thunt watched with interest, shoveling prodigious amounts of chili into his mouth.

"You like this one?" Bubba asked him.

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The alien swallowed before speaking. "Seen it. We used to wonder why, with the level of technology your news programming indicated, you weren't all over the known Galaxy. Then we realized we were watching adventure fictions." He shrugged. "A lot of things became clear once we could tell the difference."

After his bowl was gone, he laid down his spoon, sat back, and delivered a heartfelt belch that rattled the kitchen blinds.

Bubba laughed out loud. "I *do* like a man who knows how to pay a compliment."

The Thunt shook his head. "The Nishians didn't exaggerate your hospitality. They said you'd treat me well, and you have. But, I'm afraid I have to ask you to go further, as ungrateful as that may make me seem."

"Damn, you talk purty. How'd you learn so much English? Star Trek *can't* be right about universal translators."

"I am a diplomat trained to learn languages quickly. When I knew I would have to find you, I took the time to learn English from the records made of your broadcasts."

"You learn more from PBS or from Fox?"

The alien shrugged. "All your frequencies are equally confusing."

Bubba cackled. "Can't debate the obvious. Something else: why, although I certainly don't disapprove, are you such a neatnik?"

The alien began absently wiping his hands against his knees, clearly uncomfortable with the question.

"We just are," he said a bit plaintively.

"Well, lemme see if I can figure it out." Bubba scratched behind his ear in thought. "Let's see . . . You're hairier than Alabama bacon, and furries generally have to groom to stay clean. How's your skin under all that foliage? As wrinkled as the skin on your face?"

"In general, yes."

"That explains it, then. All kinds of bacteria and parasites could hide in there if you didn't sluice yourself down every so often."

"Forgive me, the subject is a distasteful one for me. Could we. . . ?"

" ' . . . Get on with it'? Sorry, hoss. You came a long way with a lot on your mind. Just start at the beginning, get through the middle, and stop when you come to the end."

After a moment's thought, the Thunt spoke.

"I am a mid-level attaché at the embassy in our capital. There was a conflict between my city-state and another, more powerful one. It hadn't become physical, but it was doomed to. I knew, because of my position in the embassy, that a treaty could be forced on both sides if certain information was made known. This information was given to me by a representative of their embassy, in confidence." He rose and began to pace, head nearly brushing the ceiling.

"I was acting as the courier in this instance. I broached the container and read the document. I then realized that there was no way for us to win short of a dishonorable betrayal of that information. Had the embassy revealed the contents, my city-state would have been dishonored beyond any hope of redemption, and planetary war would have followed. An un-

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winnable war," he said matter-of-factly, "which would have reduced the population of Thuntun by more than half, and rendered most of the arable land unable to support life for centuries.

"I took it upon myself to disobey the council and my superiors; I resigned my commission and revealed the information as a private citizen, concluding that my own dishonor was far better than the humiliation of my world. I do not regret that decision, even under the present circumstances." He drew himself up proudly.

"Well-goddamn-said. You done good. Was the conflict resolved?"

"Yes, a treaty was signed, and hostilities ceased—at least on that level. We'll *never* like each other, but there is the beginning of a working relationship now."

"What about your opposite number? The one who leaked the information in the first place?"

The Thunt sat again, palms flat on the table.

"She was executed."

Bubba shook his head. "Well, *that* sucks."

"Yes. It does, indeed, 'suck,' assuming that that term has a negative connotation."

"You betcha." Bubba sat back and rested his arms against the back of the couch. "All that having been said, and I'm not saying I'm necessarily agreein' to anything, what do you need?"

"A Champion."

"Say what?"

"A person of strength, intelligence, and honor to stand for me before the council."

Bubba scratched his beard. "I ain't no lawyer, son. Not to mention that I don't know squat about you *or* your culture." He shook his head. "Don't think I'm going to be your best shot."

The alien leaned forward intently. "There is no legal maneuvering involved. I stand convicted by my own admission. The Full Council will hear a single appeal for forgiveness based on my acceptance by a Champion."

Again, Bubba shook his head. "Son, look at me. I'm half your size, twice your age—relatively—and no more or less honorable than any other lump of carbon-based protoplasm. What makes you think I stand any chance of helping you?"

"If strength and size were the only criteria, I would agree with you," the alien said, "but there are more important considerations. The Nish you met were impressed by your resourcefulness, your ability to solve problems. Very few non-spacefaring races would have been able to grasp the simple fact of the existence of life elsewhere, let alone figure out how to fix unknown technology."

"Well, hell . . . Mike here will tell you that there were other names in the hat besides mine."

"None with your talents, Bubba," Mike replied quickly. "And few with your intellect."

"Yeah, well. . . . Be that as it may, son, you've still gotta be able to find somebody more honorable than I am. I mean, I'm not exactly crawlin' in the gutter, but I'm just as self-centered and ornery as the next guy—probably *more* so."

"When Bubba encountered the Nishians," Mike said to the Thunt, "he

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was given certain technologies as payment for his help. These included room temperature fusion and mass cancellation. What happened to this knowledge, Bubba?"

"I was able to pass it right on along to somebody better suited to handle it, Mike. You know that."

"Why?"

Bubba snorted in mild frustration. "Hell, because if I'd kept hold of it, I'd've screwed it up, that's why!"

"So you gave this knowledge away, and turned down any financial claims you might have had on it, correct?"

"Damn right. I didn't need the grief."

"You made sure, then, that it would do the most good for the most people, without monetary considerations on your part," Mike added quietly. "Isn't that a reasonable example of 'honorable'?"

Bubba stared at him for a few seconds before answering.

"You tricked me with that, Mike."

"Granted. It is, nevertheless, accurate."

"And in agreement with what I was told by the two Nishians," the Thunt added. He caught the human's gaze with his own. "You're the only resource I have, Bubba Pritchert. I cannot force you to help me, but without your aid I may never be able to return home—ever."

Bubba stared at the wall, not speaking for several minutes.

"I'll have to think on 'er, hoss. This isn't anything like rebuilding an engine on racing stock; there's always another race."

There was a sound from the harness. The Thunt tapped it lightly, then listened closely. His expression, hard enough to read in the loose skin of his face, froze; his posture, at first alert, slowly sagged.

"Mike. . . ?" Bubba said softly.

"Don't know the language. It isn't good news, though."

When the communicator fell silent, the Thunt closed his eyes. He reached up slowly and removed it, dropping it to the table.

"I. . . . That was a message relayed to me through the Intelligence on my scoutship. The council has made its decision." The alien's voice was almost too low to hear, and emotionless. "It would seem that I have greater need of your help than I thought, although I'm afraid there is little you can do." Opening his eyes, he looked bleakly at the human sitting next to him.

"I am no longer a mid-level attaché. I am no longer V'rinn, son of Bish, son of Prath, son of Lan, daughter of Leens, daughter of Stel, son of Rinn." His voice was level, but lifeless. "I am no longer . . . a Thunt. The full council has decided; my name has been taken from me, and I have been stripped of my race."

"Say what?" Bubba said softly.

"I no longer exist. I am a Nameless one. I have been cast out, without family, without identity. I may speak to no one of my race, none of my Progenitors." He stared at his hands, then dropped them to his knees.

"There are lesser things, too: I may not own property, may not buy from or sell to any other Thunt. I am not allowed to breed, and my name may

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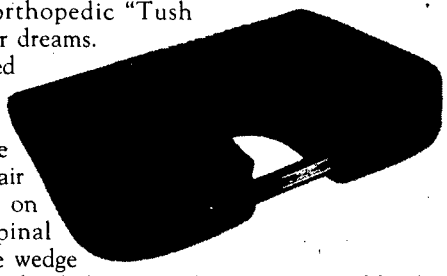

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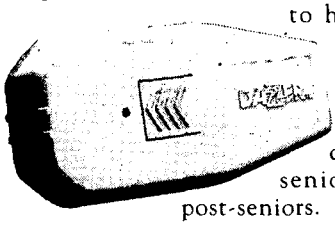

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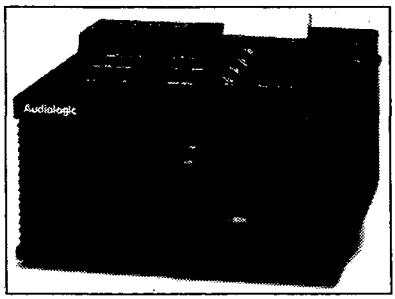

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not be spoken." He looked back at the human with hopelessness. "I may work in the mines, but that's all. There is nothing else to be done."

"The *hell* you say!" Bubba was a little surprised at the vehemence of his reply. "Those ornery sons of bitches! I can't b*elieve* they did this!"

"Bubba, I don't think you understand. By the laws of Thuntun, I am guilty of my crime. The punishment is harsh . . . more harsh than you can know. But it is, by our lights, just."

"Well, hoss, I can tell you right now that it *ain't* 'just' in King William County, and if they think we're gonna let this slide, they're missin' a rope off their porch swing." He stood and began to pace.

"You ain't a Thunt and you ain't your mother's son, you ain't a hero and you ain't even the jam b'tween their toes, huh? Well, I'm here to tell you what you *are,* old son," he said loudly, drawing himself up to his full height, eyes flashing at the big alien. "You're a guest in my goddamn house, is what you are, and nobody on this planet or any other insults a guest under *my* roof." Grabbing dishes and utensils, he stomped back into the kitchen.

"C'mon, boy, get your shit together. We got ass to kick and names to take." Dumping the dirty dishes into the sink, he began washing them savagely.

The alien picked Mike up and followed, standing off to one side and looking uncomfortable in the face of the human's obvious anger.

"Bubba," Mike said, "it's late. Both you and . . . both of you need rest, and there's planning to be done. I suggest that you find somewhere for our friend to sleep, and try and find a fresh perspective in the morning."

"Yeah, well . . . " Bubba began, then stopped and dried his hands. "You're right, Mike. I can't think my best right now, and it has been a long and eventful evenin'." He heaved a sigh that seemed to calm him, and smiled a bit sheepishly. "Sorry, hoss. Didn't mean to fly off like that. I'll set you up in the spare bedroom."

Going to a closet in the hall, Bubba brought out an air mattress and showed the alien how to inflate it; with his lung capacity, it was full in a matter of minutes, and he stretched out gratefully. He was asleep almost immediately.

Bubba stood for a few moments looking down at him, then sighed again and, picking up Mike on the way, retired to his own bedroom.

"Mike," he said, setting the alarm clock for six A.M., "what in the hell have I got myself into this time?"

"Oh, not too much. You've provisionally accepted into your home an intelligent, predator-evolved omnivore who could break down one of those trees out there without sweating, promised to represent him in a dispute with his entire species, and unless I misread you, you're on the verge of doing something even *more* silly, like adopting him. How close am I?"

"Awful damn. I dunno, Mike. I kinda like the big lug, and I think he got a raw deal from his friends and neighbors. I've always been a sucker for a sob story, and there's something appealing about him. Aside from the fact that he looks like an expensive dog, that is."

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"Bubba, I realize that you are out of the ordinary. This is why we sought you in the first place. I also understand that you are a human of feeling, and one who becomes frustrated by what he sees as an outrage. But, *are you out of your mind?* You don't have any real idea what intrinsic difficulties there are in adopting an alien. You *can't* have, as it's entirely outside of your frame of reference. Why are you so determined to take in this stray?"

"Mike, I remember a college professor I once knew who hated the very idea of abortion." He opened a window, and looked at the trees where the ship was hidden. "Most people either talk a big game or make a damned nuisance of themselves, but Nick wasn't like that. Instead, he and his wife adopted anything they could: black, white, Asian, and everything in between. All this on an academic's salary, with damned little help from anywhere."

"I think I see your point, but make it anyway."

"He stood for what he believed, Mike. He put his money, his house, and his heart where his mouth was. I never once went to his house that there weren't kids underfoot, running and hollering like banshees—and I never once saw him look at those kids without a smile."

Bubba slapped the sash with one hand. "You're goddamn straight I'm outraged! It ain't fair, none of it. That boy is a long way from home, and I don't have the slightest idea if I'm gonna do him any good up there. He may end up just as bad off, with no family and no home to go back to. Unless I'm willing to admit that I've been wasting time yakking about brotherhood for a good part of my life, I have to do right by him."

He straightened from the window and tugged down the covers. "Besides, I never could stand to see a man estranged from his family."

"You say that as though from experience, Bubba."

Bubba didn't answer right away, but got under the sheets and turned out the light. "Mayhap I am, Mike."

"Would you like to talk about it?"

"Naw, I'm OK. Maybe later, when you're older. G'night."

The next morning, while Bubba was at the grocery store, the alien roused himself, took care of his morning ablution, and sat on the couch with Mike on the end table next to him.

"He calls you 'Mike'? I wasn't aware that Intelligences had individual designations."

"A name of convenience. Humans give names to practically everything, including inanimate objects—which they stubbornly refuse to believe are completely inanimate."

"I see. He doesn't treat you as an Intelligence, then."

"No. It was, I don't mind telling you, somewhat disconcerting at first. Now . . . well, instead of being simply a navigation system or information database, I have an identity."

"'Identity . . .'" the alien said softly.

Mike had been quiet for a moment.

"Whatever else Bubba is, he is an honorable being. I have never known

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him to lie, or make promises he does not try his best to keep. *If* there is a chance, and *if* he puts his mind to it, he will succeed.

"Not long ago, another human brought in a vehicle that wouldn't work properly. There was no apparent reason for it not to work, but it didn't. I watched as Bubba inspected every system for the fault without finding it. He then dismantled the vehicle into separate systems to look at them more closely. Still nothing."

"What happened then?" the alien asked, interested in spite of himself.

"He finally dismantled the entire vehicle, part by part, until it covered the floor of the garage. Human vehicles are much more complex than they need to be, and there were parts no bigger than your smallest claw.

"He did, in fact, find the defect, although he cursed and spat the whole time and kicked a trash can across the room. Then, he cleaned each part individually before reassembling the vehicle."

The alien nodded. "I think I see your point."

"He might not be able to help you after all," Mike said, "but it will not be because he didn't try his best."

"This thing he has called me . . . 'hoss'? It's a word I don't know."

"Regional idiom, a degenerative form of the noun 'horse.'" Mike displayed a picture of a Percheron on his screen. "A reference to your size, and meant affectionately."

"'Hoss.' Short, but oddly satisfying. I like it, I think." The alien sat for a moment in thought.

"You know humans, and I don't."

"I do, indeed, know more about them than you. That doesn't make me an expert."

"Why do they name things?"

"Good question. I wish I had as good an answer."

"To connote possession, perhaps?"

"In some cases. In most cases, not." Mike paused. "I wish I understood the human need for names. No other races I'm aware of are quite so adamant about knowing someone else's identity. It's considered rather rude."

"You must know how important identity is to us . . . to me. All that I was has been stripped away. My name was proud, rich with the Line of my Progenitors. My profession was respected, and my position one of honor. Why, then," he said in puzzlement, "does this degenerative cognate of the word for a draft animal comfort me?"

Again, Mike was silent for a few moments.

"Understand, please, that I can only speculate on this question as it relates to Bubba Pritchert. I cannot vouch for the rest of his race."

"I understand."

"Bubba is not at ease with anything he considers his inferior—or his superior. He is aware that he is unlike most of his fellow humans intellectually. His formal schooling ceased almost before it began, and he has worked hard ever since to educate himself, up to and including reading their most highly respected encyclopedia from first to last volume.

"As a result, he is, by most measures, far better educated than most—and totally lacking in the formal disciplines that are recognized by

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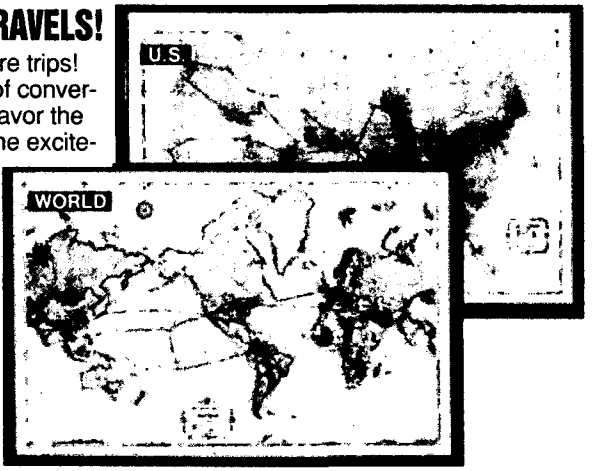

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academics. This is more of a problem than you might know; humans are among the most ego-ridden species I've ever encountered.

"For him," Mike continued, "being able to name something gives him a handle by which it can be grasped; it equalizes the named so that it is no longer a threat."

"We have stories on Thuntun of sorcerers gaining power over their enemies by finding their True Names," the alien said.

"Much the same here. In a small way, I have tried to guide his intellectual processes by encouraging his use of logic. Hence, our little game when you first arrived."

The alien nodded. "I see. So, he uses 'hoss—'"

"To indicate his acceptance of you as an equal. The human term is 'nickname.'"

"Ah. We have another term for it, but it's the same idea.

"You know," the alien said after a minute, "you were right about the wealth that can accumulate in a family with a long lineage. If Bubba is successful, he will be amply rewarded; not all of my Progenitors sat easy with the council's judgement."

"He has very little need for money. He has more than enough for necessities, plenty for his indulgences, and his profession paid him enough that he's got sufficient savings 'put by,' as he says. Nor would he accept a monetary reward for what he considers a favor based on his principles."

The big alien frowned. "There must be *something* he would accept."

Mike thought for a few moments.

"There *is* something," he said, and a series of photographs and diagrams appeared on the screen.

The alien leaned forward to see the images dancing in front of him, nodding from time to time as Mike explained what he was seeing. Finally, he sat back.

"Gotcha," he had said, and chuckled.

When Bubba returned, he had an arm full of groceries and a determined look.

"Gather 'round, boys," he said. "time's a-wastin'." He began putting the food away, including several quarts of seltzer, which went into the freezer.

"Now. What about this 'Champion' thing, hoss?"

"Wait," the alien said, holding up his hand. "First, we must talk about this 'hoss' word."

Bubba sat back in surprise, searching the other's face for clues.

"Oh, dear. My apologies, friend. I surely didn't mean you to take offense, but I can't just say 'hey, *you!*'"

"You misunderstand me, I'm not complaining. Mike and I discussed this earlier, and since I am currently a non-entity, I happily accept the. . . ." He glanced at Mike for the word.

"'Nickname.'"

"'Nickname,' yes. We call it a 'Name of Equals.'"

Bubba smiled. "Well, then, Hoss," he said, "you got yourself a Name of Equals, and wouldn't Pa Cartwright be pleased? Now, what's involved in this fooforaw?"

Hoss sat gingerly on the kitchen chair, which creaked under his weight.

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"Challenging the council and my Progenitors by myself would not only be useless but insulting, since one of the requirements is to show that at least one person accepts that I'm honorable." Now that preparations had actually begun, the alien was becoming more and more positive.

"It can't be a member of my family for obvious reasons, and my colleagues in the diplomatic corps have adopted a 'wait-and-see' attitude. I was engaged in searching the colony planet for a mercenary when I ran into the Nishians.

"The Trial will consist of three Tasks:" he continued, "a Task of Body, a Task of Mind, and a Task of Spirit."

"Hmph," Bubba grunted. " 'Task of Body'? That's gonna be a bitch if they're all your size back home."

"You must best a warrior in single combat, with your choice of weapons."

"How about Robot Commandos at twenty paces?" Bubba muttered.

"Neither battle suits nor mechanicals are allowed," Hoss said seriously.

"Never mind, I'll come up with something. What's next?"

"A Task of Mind. You'll be facing one of the Academics and attempting to give them a problem without a solution, or a logical conundrum that they cannot solve correctly. It must have an answer, and one they will accept, but not one they would think of."

Bubba laughed shortly. "You don't need me, you need a Talmudic scholar! Can I bring Rabbi Schteckner along?"

Realizing Bubba was joking, Hoss just looked at him sadly.

"The third trial is a Task of Spirit. You must prove your honor so that the council, governors, and my Progenitors can see that by your honor, you do *me* honor."

"Dunno what to do about that one," Bubba said shaking his head after a moment's thought. "I'll have to think on 'er.

"In the meantime," he said, rubbing his hands together, "how 'bout some lunch?"

"I could use some nourishment, yes." As Hoss nodded vigorously, the chair groaned underneath him, and he froze in alarm.

Bubba chuckled. "Bet you'll be glad to get back to where the furniture's built for you, huh?"

Hoss smiled. "With your help, maybe it will happen."

"Well . . . " Bubba was clearly embarrassed. "Well, I'll do what I can, Hoss."

Busying himself with pots and pans, he considered the pros and cons of helping the Thunt. On the one hand, he was something of an old-style Country Gentleman; when a neighbor called for help, you grabbed your tools and started working. The Thunt might not be from Around Here, but he was in need of help, and Bubba thought the whole situation was pretty damned unfair.

On the other hand, if Hoss was a good example, these Thunts were big, hairy, and just maybe mean as a snake, and helping Hoss could end up costing more than tool-and-travel time and scraped knuckles.

On the third hand. . . .

"Y'know, I've always wanted to see

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just what might be out there, Hoss. That saucer of yours got windows?"

"There is a means of viewing the surrounding area while we're in flight, yes," the alien answered.

"Then we'd best get an early start."

The next morning, Bubba packed plastic containers with chili and sandwiches, along with several bottles of seltzer. Since Hoss said they'd be gone for several days, he adjusted the generator to run at minimum (the refrigerator, security system and little else), set the VCR to tape the upcoming *Blackadder* marathon, and locked the door behind him. Hoss was waiting, and after strapping in, they left the backyard and headed for the sky.

"This thing *is* cloaked, isn't it?" Bubba asked.

"After a fashion," Hoss replied. "It's radar-transparent, and we're headed into the Sun. I doubt anyone will see us."

"And if they did," Mike interjected, "don't you think they'd be getting used to it by now? You've been visited by more aliens than practically any other human."

"Yeah? How about the Grand Old Men of the contactees, Adamski and Menger? Menger's the one who kept meeting B-Cubes."

"'B-Cubes?' Or shouldn't I ask?"

"'Beautiful Busty Blondes.' "

"Well, to my certain knowledge, George Adamski *never* encountered any aliens of any kind whatsoever. His photographs were hoaxes perpetrated by a lonely old man who worked in a diner. Howard Menger I cannot discuss."

"So, Dr. Fu Manchu," Bubba hissed, "there *is* a limit to your insidious genius!"

"I never said that. I merely pointed out that I couldn't discuss Howard Menger."

Bubba was silent for a moment. "You know," he said thoughtfully, "I could take that one of two ways."

"And wouldn't you like to know which?"

Space was wonderful. Bubba's single flight to England to attend a UFO conference (which was singularly discomfiting; the Streiberists—those who blamed aliens for abductions and horrifying medical experiments—now far outnumbered the Adamskians, and he was dismayed at the number of people who would no longer welcome their Space Brothers) was the closest he'd come. They would soon be moving at a significant fraction of the speed of light, but Hoss had indulged Bubba's request to view Earth in real-time as they moved away from the plane of the ecliptic.

"It's really *not* the same," he whispered, his attention so rapt on the image in front of him that he could scarcely breathe.

"What isn't?" asked Mike.

"I've been looking at that view of the Earth since Gemini, but seeing the poster and seeing the real thing . . . I just don't have the words." He swallowed hard, as if there was an obstruction in his throat.

"Parallax?"

"Huh? Oh, sure, out here it's three-dimensional, but that's not all of it. Not by a long shot." He shook his

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head. "I can't help thinking about Michael Collins."

"Apollo 11."

"Yeah. Aldrin and Armstrong got to the Moon, Collins stayed in orbit. Can you think of anyone more alone than a man in orbit over the far side, out of radio contact with anybody? He wrote a book about it later, and I think Calliope missed a bet when Urania got him first."

"This is very special to you, isn't it?"

"Mike, this is where I've wanted to be all my life, ever since I found an issue of *Astounding* in my Uncle Rollo's sea-trunk." He touched the screen lightly. "All those covers, all those stories, and that unforgettable smell. All that led up to this."

He cleared his throat, then turned back to Mike and smiled. "Hey, I knew if I clapped long and loud enough, Tinkerbell would make me fly."

Mike crackled. "Some fairy. Think you can get us home by clicking your heels?"

"Maybe. Can't guarantee Kansas, though."

"I have several things on file that I'd like to ask you about, Bubba," Hoss said. "Films that seem to have no purpose as teaching stories, but that are curiously enlightening nonetheless."

"Hmph. You got a directory?" The Thunt spoke a command, and an almost endless list scrolled by on the screen. "Hotdamn, Hoss, where'd you get all this?"

"You've been broadcasting it for the past fifty years or more. Some of it is unintelligible, even given a study of your languages, but a lot of it is very Thuntic. I especially enjoy the films of Robert Clampett."

Bubba blinked. "I'm a Tex Avery man, myself, but vintage Beany and Cecil is awful hard to beat."

"Oh, dear," Mike muttered. "Trapped in a small scoutship with cartoon fans. Shoot me now."

"Ignore him, Hoss, he's a barbarian. He don't even understand roller derby—not that anybody does, I s'pose. You got *One Froggy Evening* or *Bad Luck Blackie*?"

"I have both. They seem to be human favorites. They're certainly broadcast often enough."

"Then settle back and I'll try to explain."

It was close to 4:00 P.M., Central Garage time, when they at last entered Thuntic space. Stars which had been slightly elongated and red/blue-shifted (looking more blurry than anything else, Bubba thought) came into focus. Bubba asked Hoss if he could pull up a schematic of the system on the viewer; Hoss could and did. There wasn't a lot to see that Bubba didn't have at home; several planets visible as tiny disks, at least one of which appeared to be ringed, and a star that looked smaller and brighter than Sol.

"Boy, Superman would *love* this system," he thought.

Hoss spoke into a headset, (mostly low rumbles; Thuntic seemed to be modulated the same way human speech was, Bubba noted with interest. It was also, at least partially, a positional language; he heard sharp gutteral clicks that seemed to be pitched at the high-, mid- and low-ranges). There was no audible response but

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Hoss finally touched his forehead with the back of his hand in a gesture of what must have been acquiescence, and turned to Bubba.

"We're being approached by patrols from the Presidio," he said. "We are to proceed to the Governors' Complex in the capital city. The Council will convene tomorrow for the Trial. We'll be escorted there under guard."

"Nice of 'em."

"I doubt they're guarding us, Bubba," Mike corrected. "They're more likely guarding *against* us."

Bubba looked at Hoss, but the expression under the loose skin was unreadable. "'Once more into the breach, dear friends,'" he misquoted, "'for Grid, for Goofy, and Saint Walt!'" There was a slight nervousness in his voice.

Within an hour, they had reached Thuntun, and were being escorted by a pair of patrol ships. Obviously designed for operating both in and out of the atmosphere, they were sleek and powerful. No armaments were visible, but Bubba didn't expect them to be; anything that looked like a gun would spoil the aerodynamics, and these were aircraft as well as spacecraft.

As they knifed into the atmosphere of Hoss's home-world, escort still bracketing them, their destination quickly became visible through the clouds: a complex of buildings that sprawled in all directions, one side of which seemed to disappear into a jungle. There was also a flat, square expanse that contained several of the same sort of ships that were riding herd on them.

"Nice planet you got down there," Bubba said. "I know I can breathe the air, since you didn't have any trouble breathing ours, but what's it like?"

"Thank you. There is a little more oxygen than you're used to, but very few hydrocarbons. We burn no petroleum here. I can open a vent if you'd like a sample." Hoss turned a valve, and air from outside hissed into the cabin. Bubba leaned close to sniff.

"Smells a little funny, but I've been to Urbanna for the Oyster Festival, and if I can eat that close to a fish processing plant, nothing here is gonna bother me."

They landed soon after, and when Hoss opened the hatch, guards in full harness were standing at attention just outside. Hoss exited first, Bubba following with Mike slung around his neck on a camera strap.

As they walked towards the complex, Bubba noticed a slight lightheadedness, which he ascribed to the higher percentage of oxygen. He also noticed a briskness to his pace, and asked Hoss about Thuntun's specific gravity.

"Not quite 90 percent of Earth's. Be careful walking downstairs."

"Gotcha."

There were Thunts on either side of them, two leading, and one in the back. It seemed to be a largely ceremonial guard, since there were no visible weapons; all of them, however, looked more than capable of dealing with the trio bare-handed should any of them decide to raise a ruckus.

"What's the agenda, Hoss?" Bubba asked.

"We'll be shown to quarters. After

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that, the council will inform us of our status: prisoners, detainees, or guests. That will have been decided once they knew I was coming back; we won't have long to wait."

"OK. Any chance I can light up my pipe? It helps me think, but I don't want to pester anybody with it."

"Perhaps, if the Council has decided that we aren't prisoners. Guest quarters have facilities to deal with the smoke."

They reached the doors of the large building, which were opened by guards wearing what must have been uniforms: short, dark green vests and Sam Browne belts holding pouches. Again, no weapons were visible.

"Hoss," Bubba said out of the side of his mouth, "none of these ol' boys are packing heat. Is that standard operating procedure?"

"For these circumstances and at this place, yes. There are emplacements where we cannot see them, and you can be certain that we're under the scrutiny of the council, if not my Progenitors as well. By the way," he added, aping Bubba's prison-yard speech, "we three are the only ones present who speak your language. We don't have to whisper."

Indoors, he looked around at his first alien architecture. The hallway was long and square, with doors every few yards to break the monotony of the bare walls. The floor was flat, apparently covered in some synthetic that gave slightly beneath his feet. There were fixtures hanging from the ceiling, casting an even, bright light over the party as they advanced towards large double doors at the far end. The walls were painted a light green.

"Well, damn," he thought, "I might as well be in the King William County Courthouse for all the sense of wonder I'm getting out of this." He chuckled and shook his head ruefully; here he was on another planet surrounded by aliens, perhaps the first and only human to be so, and he wanted it to look like a Frank R. Paul cover.

"What are you mumbling about?" asked Mike.

"Oh, nothing," Bubba replied. "Just expectin' *Ralph 124C41+* and gettin' *Babbitt*. I'm more excited than I think I am, is all."

"Were you born this cryptic, or did you receive a series of electrical shocks?"

This time Bubba laughed out loud, which earned him startled looks from the guards.

The group was led off into a corridor to the left before they reached the double doors. Hoss said, "This is the way to the guests' wing. Things may not be so bad after all."

The walls were less institutional here, with decorative hangings and colors that lay restfully on the eyes. Hoss pointed out several objects high in the corners that he said were part of the security system; not only visual receptors, but outlets for aerosols.

"There are oftentimes officials here who are in danger from assassins," Hoss explained. "These precautions ensure their safety."

"I 'spect they prevent them from any number of things, Hoss, if your folks are anything like mine."

"Perhaps. My actual experience

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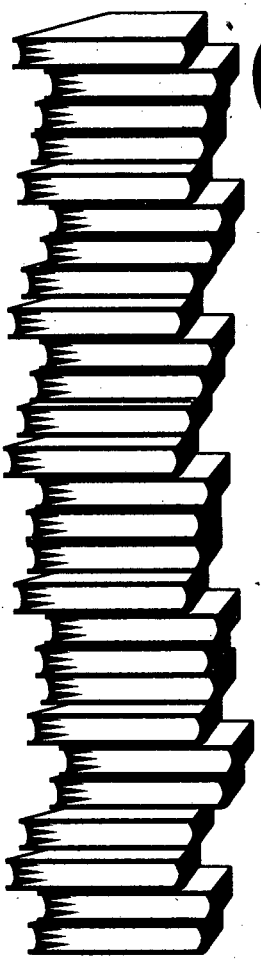

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with this area is extremely limited; I only know what I've read."

The party was halted at a door that opened without any keying device, as far as Bubba could tell. The leader of the guards led them inside and spoke at length to Bubba. Without even a nod to Hoss, he turned smartly and left.

"Well. It could, indeed, be very much worse," Hoss said, sitting on a padded bench. "We have been accorded guest status, as I assumed. We have access to the complex, although we're limited to the living quarters and recreational area."

"What if we go beyond that?" Bubba asked.

"Don't *look* for trouble," Mike said before Hoss could speak. "It will be in our back pockets soon enough.

Hoss nodded. "If we go too far in the wrong direction, we'll be gently but firmly removed and sent back here—and then locked in. It would be considered impolite."

"Hmph. My mother would come back and whop me upside my head if I insulted my host, and she had a good right arm. I guess I can leave off trying to be Bat Durston for a while."

" 'Bat . . .'?"

"Inside joke. Forget it."

Hoss stretched where he sat, and then stood. "We should explore the Gardens. I understand that they're at their peak right now. You may bring your smoking apparatus."

"Uh-huh," Bubba said noncommittally. "Can't hurt to stretch m'legs, I s'pose. Lead on, big fella."

They left the room and Hoss consulted a plaque set in the wall just outside the door. "The Gardens are this way."

They set off down the corridor and after a few turns, Bubba could smell a subtle change in the air: a bit warmer, more humid, and laden with odd but pleasant odors. As they drew closer to the end of the hall, he noticed that it opened directly into the forest they'd seen from the landing area; it looked like Frank Lloyd Wright had been given carte blanche to design and build his heart's desire, and Bubba was, for once, speechless at the sight.

There were trees with feathered leaves, ferns that grew in complex geometric patterns, and flowers beyond counting; flying animals (neither birds nor insects as near as Bubba could tell) went from blossom to blossom; small, lemur-like creatures with scales stared with huge eyes and frank interest at the two figures, the filtered light glinting off their iridescent skins before they leapt away into the bush.

Overhead, Bubba could see larger arboreal animals sitting on the heavier limbs, idly chewing the thicker leaves that drooped.

Bubba stood slowly, feeling his back and knees creak with the movement. He looked around at a truly alien landscape, filled with wondrous life. He heard the thrumming of insects, and a breeze laden with mysterious aromas lifted his thinning hair where it stuck out under his cap. He closed his eyes and just stood, taking it all in.

After a long moment, Hoss said, "Bubba, you are leaking. Are you unwell?"

Bubba said nothing. "It is an autonomic response to an emotional stim-

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ulus, Hoss," Mike explained. "He is definitely *not* unwell."

"Then I will wait until he is ready," the Thunt replied quietly.

"I'm fine, boys, just fine," Bubba said, opening his eyes and wiping his sleeve across his face. "I thought I could get on top of this, but I believe I'll just let 'er go." He turned to the Thunt. "See, we humans take pride in bein' in control, Hoss. We rarely are, but we like to fool ourselves. Now, I'm in the middle of something I've waited for all my life, and I'd like to think I'm drivin' this hummer—only thing is, I ain't, and I know it, and life's too short to pretend I am. From here on, I'm just gonna enjoy the ride, and let somebody else steer. So," he added brightly, "you got us out here for something besides making my dreams come true. What's up?"

"We are free of surveillance here, by law. I would discuss the upcoming trial with you."

"Trial . . . hmph. For a minute there I'd forgotten about that. What's up?"

"As my Champion, if you satisfy the council and my Progenitors, my name will be returned to me and I will be reinstated as a Thunt. If you do not satisfy them. . . ." He shrugged eloquently.

"What happens then?"

Hoss was silent.

"One would effectively be banished," another voice said. Hoss leapt up at the sound.

"One could own no land, could neither buy from nor sell to anyone on Thuntun." The Thunt who had spoken was slightly larger than Hoss, gray, with an air of authority. He looked straight at Bubba, carefully avoiding any eye contact with Hoss.

"Worst, one would be forbidden to breed; no self-respecting female would have him. One would be forced to the Outer Colonies, to live the rest of his life alone, in disgrace."

"Doesn't sound right to me, somehow," Bubba replied, eyes narrowed. "Doesn't sound right at all."

"It doesn't matter if it's right, Champion. It is the law. It is the Principle." His tone was slightly bitter. "The Principle has served us well for a thousand generations. It cannot be changed for one individual."

Hoss was standing stiffly, almost vibrating with held-in tension. Bubba patted his shoulder, reaching up to do so.

"Well, back home we have laws, too, right many of them. Some say that the law's lost sight of justice in a lot of cases, and that there are times when people should judge a man by the best of what he's done, not the worst of it. Hoss didn't kill anyone, he just stopped a war you couldn't win. He's being treated like he started the damn thing. By the way, I didn't catch the name."

"You don't ask names Out Here, Bubba," Mike said quickly. "They're either offered freely or kept private."

"No," the stranger answered. "Your friend has come far, and has agreed to aid someone not of his kind. He has at least earned that." The Thunt drew himself up to his full height. "I am Bish t'ak Tellim, son of Prath, son of Lan, daughter of Leens, daughter of . . . of many other Progenitors whose names would mean nothing to you."

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He relaxed visibly.

"I am Allen Poe Hudgins Pritchert, son of a mess of folks, some of whom *I've* never heard of." He offered his hand to the alien. "Be pleased if you'd call me Bubba. M'friends all do."

The Thunt looked at his outstretched hand, then took it carefully in his own—whether to prevent injury or through squeamishness wasn't clear. "I am honored that you share with me your Name of Equals. My . . . friends . . . call me K'tine."

"Look, K'tine, all this standin's got my back in a bad mood. Set yourself and we'll enjoy the park together."

"Thank you, but I must return to the complex. I have preparations to make." K'tine moved as if to go.

"Well, pleased to make your acquaintance, anyway. But before you go, you gotta tell me how it is that you got so much English."

"I learned it for this circumstance. It was necessary, as I translate for the council." He turned his back to them, but before taking a step said in a low voice, "Do your best tomorrow, Bubba. I would have my son back." He left the garden without looking back.

Bubba was quiet for a long time.

"Seems nice enough, your father," he said noncommittally.

Hoss replied in a low voice that shook with emotion. "I have no . . . no words about my father. I have seen neither of my Primes since my action, have not spoken to them. They are lost to me." He paused, obviously shaken. "And yet, he came to us. It is unprecedented. He could not see me, speak to me, or touch me lest he share my fate. But he *came*."

"Of course he did, you big galoot. You don't think for a minute that he was talking for *my* benefit, do you?"

"I don't understand."

"And you say you watch our TV and movies. Hmph. Look, he came out here to let you know that he's no more happy about things than we are. He might not be able to do much, but he wants his boy back as much as any father would." Bubba pulled a rag out of his pocket and began absently wiping his hands. "Might just be that he's not the only one of your Progenitors feels that way, old son. I got a feeling that tomorrow's gonna be, well, interesting—in the Chinese sense."

"What do you mean?"

"Don't worry about it, Hoss. C'mon, let's get washed up and see what kind of spread these folks lay on. I'm tired of chili."

There was a *lot* of food in the dining hall, enough to feed a dozen or more people, but they were seated alone at a large table. A menu screen set into the table allowed them to ask for anything not already present; Hoss explained that since there was no real contact between him and the kitchen staff, there was no violation. A conveyor system delivered the food within moments—the staff was obviously expert.

There were fruits and vegetables, of course, but most dishes were unfamiliar: bowls of what looked like various kinds of aspic (Hoss explained that these were the by-products of insect colonies. Bubba thought hard about honey and tried some, and found them both indescribable and wonderful);

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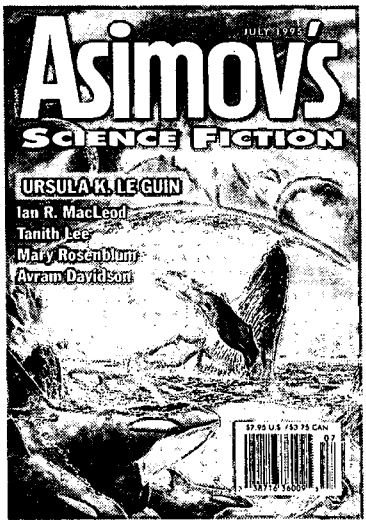

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several meats—raw, roasted and baked in ornate clay shells; six different breads; a tray of condiments including sweet, sour and hot sauces; cold milk, chilled wine, and a hot tea made of native herbs. What Bubba took to be the centerpiece but which turned out to be a delicacy—Hoss's favorite, in fact: a tower of blue-white ice spires, filled with some sort of thick-stemmed flowers and rising out of a bed of spun noodles the consistency of gossamer.

"This is the work of my Eight-Mother, I'm sure," he said, breaking off a spire and winding noodles around it like cotton candy. Bubba tried some; the flowers added a sweetness to the ice which was balanced by the salty noodles.

They ate in silence. Bubba always read when he ate, unless there was conversation going on, but the richness and variety of the food kept him absorbed.

Finished, both pushed back from the table and belched loud and long.

"What're the rules around here concerning tobacco?" he asked Hoss.

"If you're referring to leafy combustibles," Hoss replied archly, "be my guest. It doesn't bother me, and in any case there are precipitators in the ceiling."

Bubba pulled out his old briar, loaded it from a leather pouch, and lit it with a wooden match scratched against the sole of his boot. He puffed out a cloud of aromatic smoke and clasped his hands behind his head.

"All we need now is my mother's pecan pie. Sweet as a stolen kiss and just as nutritious. Remind me to give you the recipe, Hoss."

"If it's anything like the 'chili,' I'll take it."

"In its own way, I s'pose it is. Not as many peppers, mind you."

Hoss managed to look disappointed. "What a shame," he said.

"If you only knew. Say, do you think there might be a bottle or two of steam-brewed beer somewhere about?"

The Thunt smiled. "I will be happy to check." He consulted the screen.

There wasn't, but there was plenty of the native beer, tangy and rich, with a slight smoky aftertaste. It was brought to them in a wooden keg set in a frame that let it rotate along its main axis. A hole in the side was sealed with a wax plug, which Hoss ceremoniously cut out with a sharp folding blade he took from his pocket.

"This is called *k'rrith,*" Hoss said, "although I don't expect you to be able to say that after the third mug."

"You trying to say I can't hold my beer, Augie Doggie?"

"We'll have to see, won't we, Doggie Daddy?"

"Oh, dear," Mike muttered, "two rednecks in a drinking contest. An 'off' switch. Why didn't I ask for an 'off' switch?"

"You told me you never liked to be shut off," Bubba protested.

"I didn't mean for me!"

Hoss and Bubba spent the rest of the evening laughing and swapping lies about women, cartoons, sports, music, beer, and women; two more of the small kegs were brought in and eventually emptied. Bubba was overjoyed to find a toilet off to one side of the room, and delighted by Hoss's

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translation of the more interesting and scatological graffiti. He taught Hoss several songs, ranging from "Johnny, Be Fair" to "The Ballad of Lizzie Borden," with Mike translating into Thuntish as they went along.

Finally, arms around each other and singing in no-part harmony, they retired to their suite.

Early—far *too* early—the next day, the door to their chamber chimed. Bubba, still mostly asleep, padded to the door and in a hoarse voice said "Who?"

There was a spate of Thuntish from the other side. "WAIT wait wait . . . " he said irritably, and fetched Mike to translate.

"The Ceremony is to begin in one hour," Mike said. "You must both be ready. The cook has sent along a bottle of something that will clear your heads. She says she enjoyed the songs you were singing last night, and would very much like to meet this 'John the Kidney Wiper' if you can arrange it."

Bubba opened the door wide enough to peer blearily out at the female Thunt.

"Tell her if this stuff works I'll see to it personally."

The woman snorted laughter, and handed him the bottle with two glasses. Before leaving, she made a brief comment that Mike translated as "If your eyes were open any further, you'd bleed to death."

"Yeah, and wouldn't I feel better then." Bubba mumbled.

Bubba shut the door carefully and collapsed in an overstuffed chair. Hoss emerged from his room after a few minutes, looking no better off than his human friend.

"Mornin', Hoss. Gee, you look terrific."

Hoss worked his mouth for a moment, trying to get enough spit to talk. "It tastes as though the entire Thuntish army has been marching across my tongue in their socks."

"Lucky you. *I* feel *bad*. Th' cook sent this stuff along, but drinkin' on another planet's what got me like this in the first place."

Hoss's eyes lit a little at the sight of the bottle. "Ah, *rishth!* Just what we need." He took the bottle from Bubba's nerveless hands and poured them both a glassful. He tossed his back, closed his eyes, and held his breath. His face darkened, the loose skin twitching, his nostril flaring wide and his mane standing nearly on end. He began to shake all over, then let out his breath in one long sigh. He opened his eyes, shook himself, and leapt to his feet. "Come, Bubba," he said in a perfectly normal voice. "We have a big day ahead of us."

"If you had a single shred of decency," Bubba growled, "you'd hang your head in the presence of the dead." He picked up his own glass and sniffed; other than a faint touch of mint, he could smell nothing. "Oh, well. I can't feel any worse, I s'pose." Tipping his head back, he swallowed as quickly as he could.

It was tasteless, without even the hint of what he'd smelled, but it had an immediate effect. It felt as though every semi-permeable membrane in his body opened wide to soak up the

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liquid, and he could almost feel the adrenaline and endorphins pouring into his bloodstream, cleansing the poisons and scrubbing his system shiny and pink.

"*Whooop!* What a rush! I haven't felt anything like that since the schoolmarm showed me how to multiply." He was shaking like a leaf in a high wind and almost panting. With one final gasp, he felt every part of his body fall into place as if from a height of four feet, and was instantly awake and ready to eat a bear raw.

"Sumbitch! Don't that beat all? What's *in* that stuff?"

"Proteins, vitamins, amino acids, enzymes and a few herbs that only grow here. Why?"

" 'Why,' he says. Look, all I got out of the last bucket of SauNA bait was unlimited electric power and the ability to go from zero to sixty without laying rubber. *This* stuff is *important*. What's it do about brain-cell damage?"

"If you use it soon enough, none takes place. The brew we got into last night is benign enough that we've suffered none."

"Might be worth while to see about taking some of this back. Hell, the market among Japanese businessmen *alone* . . . hmph. Boggles the mind. If people use this as their one-for-the-road, it would solve a lot of problems."

"It could be a benefit for those who feel they must partake of ethanol—and certainly would help secure the well-being of any who might otherwise cross their paths at the wrong time and place," Mike added.

"We have much to go through first, though," Hoss reminded them.

"Damn right, we do. I'm feelin' ten feet tall, covered with hair, and loaded for bear. C'mon, boys, time's a-wasting. Let's go take care of bidness."

At the appointed time, they were escorted to the big double doors Bubba had seen at the end of the long hall by which they'd entered the day before. The two guards on duty pressed ornate panels simultaneously, and the doors opened inward to reveal a large room lined on three sides by raked seats, rising from front to back like a lecture hall. Long, high benches acted as desks for each of the seats, with periodic breaks for aisles. Every seat was occupied.

Hoss pointed out a group set off to the side as his Progenitors, while remarking that his father, as translator, was elsewhere in the room; the rest were, he said, the Full Council, with the Triad of Governors on a dais in the center. The Governors were clothed in full, multi-layered robes made from brightly colored but unfigured fabrics. Vaguely Japanese in design, there seemed to be complex windings and wide straps holding everything in place. Unless the whole thing had a zipper up the back, Bubba thought, it must take them an hour to get dressed. Aside from the human, they were the only ones in the room fully dressed, and they looked hot.

As they came abreast of the smaller group, a figure rose and made its way down to the floor where they stood. Walking with a determined but nonthreatening stride, it halted directly in front of the group and planted its feet.

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"My Eight-Mother," Hoss explained out of the side of his mouth. "She is . . . rebellious sometimes." He made as if to back away from contact, but she grasped the front of his garment in both fists and wouldn't allow him to move. There was a distinct and disapproving murmur in the hall at this. "There could be trouble. . . ."

" 'Pears to me that she don't much care, Hoss," Bubba said.

One of the Triad stood and spoke loudly and firmly. Mike did a running translation at Bubba's request.

"Eight-Mother Rinn, you may not have contact with your Eight-Son. You know the law."

The woman half-turned to address him in a voice equally loud and even more stern.

"I am my clan's eldest, sonny, and if I want to embarrass my progeny, what have you to say about it?"

"The Principle *must* be observed, Eight-Mother Rinn."

She let go of Hoss and slowly turned all the way around to face the council, mane erecting to its full extent and eyes flashing.

"M'nath, Son of Kad, Son of Phli, Daughter of Nesh, isn't it?" The Triad Governor nodded.

"Well, M'nath, Son-Of-No-One-Important, I have observed your damned silly Principle for 950 years now, and I can't see that it has done much but cause pain and anguish. Look at you all!" she cried, waving an arm to encompass the whole room. "My Eight-Son saved your sorry bottoms from a war you couldn't win, a war that would have bled this planet like a leech, and instead of according him the honor due him, you cast him aside like something you pulled out of your nose!"

The Triad Governor leaned forward and spread his hands. "Your Eight-Son will have his chance today. We wish him well, but the Principle cannot be ignored."

Slowly, her mane fell, and she turned to the small group of Hoss's Progenitors. She singled one out with narrowed eyes and said loudly enough for the group to hear, "Were it up to me, Three-Mother Leens, I would slap the shit out of you and then slap you for shitting." She reached high and gently pulled Hoss's right ear, then looked the human up and down.

"Ma'am," he said, tipping his cap. The old woman sniffed, not in derision but as if to catch his scent, and then nodded. Head high, she climbed back to her seat.

"Damn, boy," he whispered to Hoss. "She reminds me of my Aunt Gartha."

Triad Governor M'nath spoke, arms wide as if to encompass the whole room, his voice carried by acoustic reflectors to every corner.

"Now is the time of Trial! As has been passed to us by our Progenitors from the Beginning, here and now shall the fate of the Unfortunate be decided. Here and now shall he show us the full extent of his worthiness—or of his dishonor."

"Here and now," echoed the council.

"Where is his Champion?"

"He stands before you, here and now," cried one of the guards who

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had led them in.

"Who is his Champion? (Your line, Bubba, and include your lineage)," Mike added.

"I am Allen Poe Hudgins Pritchert, Son of Edna, Daughter of Howard, Son of Clarence," Bubba said in a loud, deep voice. "I don't know much about your rituals, but I stand for m'friend Hoss, here and now."

The Triad Governors nodded approvingly.

"Here and now," the council echoed again.

"Good," Triad Governor M'nath said, almost conversationally. "Let's get this started. Are you prepared for your Tasks, Allen Poe Hudgins Pritchert?"

"Damn straight. Here and now."

"No need to cleave too close to ritual. You are not bound by our proscriptions.

"The first is a Task of Body. As Champion, you have the choice of combats; we will select your combatant." He called out a name, and a huge Thunt rose from his seat, bowed, and stepped down to the floor. The Governor asked him if he understood the task before him, and the big Thunt nodded.

"What form of combat do you choose?"

Bubba swallowed audibly. There was no way in hell he could take this monster in a toe-to-toe fight. He absently took a rag out of his back pocket and began wiping his hands in thought. His opponent looked at the less-than-clean rag with distaste. Suddenly, Bubba smiled, stuck the rag back in his pocket, and stepped forward.

"What are you going to do?" Mike asked.

"It's an old trick, Mikey, but it just might work."

"Sir," he said aloud to the Governors, "do you folks arm-wrestle?"

"Define it, please." Bubba described the process, placing special emphasis on arm placement and use of leverage.

"This is acceptable."

A high bench was brought to the center of the floor, and Bubba was escorted to it. The Thunt looked at him speculatively; he was at least three heads taller than the human, and bulked out accordingly. Bubba took his place at the bench, settling his elbow and planting his feet. The Thunt took his time, stretching his arms and opening and closing his fists.

At last, he strode to the bench and laid his elbow next to Bubba's, setting himself to make the best advantage of his strength and leverage. He rumbled something that Mike interpreted as, "Don't let me hurt you, little fellow." Bubba just grinned and looked him directly in the eyes.

They touched hands tentatively, like fencers touching epees. The Governor said, "When I give the word, begin. GO!"

Before the word was fully out of the official's mouth, Bubba hawked and spat a wad of phlegm into his palm, then quickly grabbed the Thunt's hand and slammed it to the bench top before the horrified alien could react.

There were shouts from all over, as the defeated warrior screamed *"AAAARGH!"* and ran from the hall, desperately searching for some-

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thing—anything!—to wipe his hand on.

The protests mounted as Bubba stood in place, clasping his hands over his head in the traditional boxer's victory stance. Triad Governor M'nath held up his hands to quiet the crowd, and announced, "It was a fair contest. The greatest strength is to know your enemy's weakness." He shook his head, but it seemed to Bubba that there was a twinkle in his eyes that belied his apparent disapproval.

"The first Task is complete," he said in a loud voice. "We will recess briefly; no participants will leave the hall." With that, the Triad stood and left the dais, gathering their robes about them.

"Well, Bubba," Mike said. "That went much better than you had any right to expect. What next?"

"I gotta come up with a riddle. Something they can identify with once they have the answer, but nothing they can guess right off."

"Anything in mind?"

"I can't just ask 'em a kid's riddle, they ain't looking for laughs. Wait," he said, looking at Mike. "Didn't we scan *The Joys of Yiddish* last month?"

"Yes."

"Don't I remember that having a fair number of split-hair anecdotes? In particular, one about some kind of test for rabbinical school?"

"I think I know which entry you're considering. The Goebbels story?"

"Bingo! Bring that bad boy up on the screen and lemme see if I can make it whistle Dixie." As the words passed by on Mike's screen, Bubba studied them closely, occasionally asking Mike to back up. Finally he clapped his hands and said, "Gotcha! I'm ready whenever they are."

When the Triad returned, M'nath again held up his arms and said loudly, "The second Task is a Task of Mind. Champion, are you ready?"

"Damn right. Who do I face off with this time?"

The Governor spoke another name, and a female, mane gray with age, stood and bowed to the council. "Your Intelligence will translate for you," the Governor said to Bubba. "Begin when you are ready."

The old Thunt made her way to the floor, where two of the guards had placed high-backed chairs. She and the human sat facing each other.

"OK, Mike, come as close as you can to what I'm saying. It's important."

"Right."

Bubba turned to the old woman. "Pleased to make your acquaintance, ma'am," he said, again tipping his cap. She nodded in response.

"This conundrum is in three parts, and is a well-known test of wisdom amongst many of my people. I want you to picture a house in the country. On top of this house is a chimney. Are you with me so far?"

"I understand. Continue."

"Two men fall down the chimney. One comes out covered in soot, the other is clean. Which one washes?"

"The combustion would coat the inside of this 'chimney' with particles, yes. Naturally, the soiled man would wash."

" 'Fraid not. The clean one washes."

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"Why?"

"Well, when these two unlucky souls look at each other, the clean one sees the dirty one and the dirty one sees the clean one. The dirty one says to himself, 'Imagine fallin' down a chimney and comin' out clean. Don't that beat all?' The clean one says, 'Whew, *dogies!* We sure got filthy comin' down that thing. I better go wash.'" Bubba sat back.

"I see. I suppose that is logical. What is the second part?"

"Two men fall down a chimney. One comes out covered in soot, and the other is clean. Which one—"

"But surely that is the same question!" the old woman exclaimed, shifting a little in her seat.

"Nope, different one. Trust me," Bubba smiled. "Which one washes?"

"That is simple. The clean one."

Bubba shook his head. "Wish I could say you were right, ma'am."

"How do you explain this dichotomy?"

"Well, the clean one sees the dirty one and says, 'Boy howdy, did *we* get dirty! But when he looks at his hands, he sees that they're clean, so he doesn't wash. The dirty one, now," he continued, "he looks at the clean one and he says to himself, 'I don't believe it. We fell down that dark, dirty chimney and didn't get sooted up at all?' Then he looks at *his* hands, sees they're filthy, and runs off to find a sink."

The old woman shook her head. "What you say makes sense, but . . . no, it is fair; continue."

"Now *this* is the important question, ma'am, so listen closely." The old woman leaned towards him, face set, giving him her full attention.

"Two men fall down a chimney—"

She threw up her hands in frustration. "But this is the *same* question for the third time! What kind of test is this?"

"Please, ma'am. I promise you that this isn't the same question, and I promise you that you'll understand everything."

"The dirty one washes!" she said.

"No, ma'am—"

"Then the *clean* one washes!" she cried in exasperation.

"Well, no ma'am, not exactly."

"WHAT then?!"

"The answer, ma'am, is that it's a damn silly test from jump. How can *any* two men fall down the same chimney and not both be covered with soot from top to toe?" He spread his hands and looked at her as if to say "We can't always help the way things are."

For a moment, she looked like she would leap from her seat and strangle him. "*That* is the most specious . . . 'damn silly,' indeed! There's not a shred of logic . . . I have NEVER. . . !" Suddenly, she sat back, then laughed long and hard. "Very well, human," she said when she caught her breath. "Your 'conundrum' is sound, although I can't say that it pleases me to have been on the sharp end of it. You got me."

Bubba stood and offered the old Thunt his arm. "Been a pleasure, ma'am." She allowed him to help her stand, and then went back to her seat.

"The second Task is complete," the Governor spoke. "We will recess again before the final Task." With that

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he and the Triad stood and left the room by a back door. Other members of the Council and of Hoss's Progenitors milled about, arguing about the outcome so far.

"That was a nice bit of reasoning, Bubba," Hoss said.

"Well, son, don't thank me. I got it from Leo Rosten."

"You have been inordinately lucky twice, Bubba," Mike said. "You can't expect it the third time."

"Believe me, I know," Bubba replied.

"What are you going to do for the third Task?"

"I been thinkin' long and hard about that, Mike. I'm just gonna have to play it out as I think best, and hope that's enough."

No more than ten minutes passed before the Triad Governors trooped back in, bringing the room back to order.

"The third Task, the Task of Spirit, will now begin. However," the Triad Governor added, looking directly at Bubba, "there must be no more tricks, Allen Poe Hudgins Pritchert."

"No, sir," the human replied. "No more tricks."

"Then you may commence when you are ready."

"Thank you." Bubba paused, looking around the hall at dozens of alien faces. "Wish I knew something more about you folks. Those of you I've met seem to be decent people, not much different from what we've got back home. Might could be that your people and mine would get along just fine.

"But there's something I don't understand about you. Now, far be it from me to belittle the institution of parenthood. Never been one m'self, but I've had a set of my own, and never regretted them." There were scattered chuckles as Mike translated this.

"We have a book back where I come from that says 'Honor thy Father and thy Mother.' Oh," he said with a shrug, "there's lots of other books that say pretty much the same thing, but that's the one I was raised with, and that's how I think about it.

"That book says a lot of other things that I can agree with without accepting that that particular book is the only one that matters. It says you shouldn't steal, shouldn't kill, shouldn't make up hurtful stuff about your neighbor and go blabbing it all over.

"But most important, I think, is that it has a lot to say on the subject of forgiveness. Hell, the whole second half turns on that one idea alone. In fact, if you took all the books that folks like you and me use to guide ourselves through life, I'm pretty sure you'd find most of them singin' that same song, and there *has* to be a reason for that." A number of the council were nodding as Mike interpreted this; the concept wasn't foreign to them.

He began to pace, gesturing with his hands to emphasize his points. "Your man Hoss, here, managed to prevent a confrontation with an enemy you might not have been able to handle. Nothing shameful about not bein' the best—there can only be one, anyway. But you're looking at the short of it and ignoring the long." He picked out K'tine with his eyes.

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"Some of you aren't too happy with it, for all that you're not too sure how to fix it. Others," he looked square at Leens, "seem to think that the letter of the law is more important than serving justice." Again, he shook his head. "I can't help but think you've lost sight of something here."

Triad Governor M'nath interrupted. "That's as it may be, but it begs the question: can you show us Honor?"

"Well, sir, there's honor and there's *honor,* if you catch my meanin'. By that I mean there's a difference between a Thing of Honor and an Honorable Thing."

"You may explain."

"Thank you. Now, if I was to do something I didn't want to do, that was inconvenient or even maybe dangerous, simply because some code told me I had to, that would be a Thing of Honor. See, the 'honor' comes first and forces me into an action that might otherwise be just plain stupid. My choice is made for me.

"But, on the other hand, if I was to do something inconvenient or dangerous—or stupid—because I couldn't see my way to do anything else under the circumstances and still call myself a reasonable person, then the choice of doin' whatever it might be is *mine,* and mine alone. Not imposed from outside, you understand?"

M'nath nodded. "Yes. I perceive the difference. What has that to do with the third Task?"

"I'm gettin' to that." He turned to where Hoss was seated.

"Hoss," he said in a voice loud enough to be heard all across the hall, "I am offering, here and now, to take you in. I will share my home with you, my food (though I'll have to make a deal with Clint Miller for a steady supply of his beef cows), my books, and—if you'll have it—my name."

"*NO!*" shouted Leens, leaping to her feet. She was followed closely by most of the Progenitors, and a good number of the council. K'tine sat, stunned; Rinn was pounding her fist against the bench in front of her, in anger or in excitement; Bubba couldn't tell. Hoss stood slowly, his eyes darting between his Primes and the human.

The Triad Governors were frantically trying to restore order; it took a concerted effort on the part of the guards to quell the furious council, and it was some few minutes before the hall became quiet enough for any one voice to be heard.

"Bubba," Mike said intensely, "are you *sure* you know what you're doing?"

"Mike, this isn't for show. I'm ready to take Hoss home right this minute, if he wants to come."

With a final shout from the Governors, an uneasy silence was imposed on the hall.

"You must know that what you propose is impossible," said M'nath.

"With all due respect, sir, I don't know any such thing. You've cast him aside like trash. How can you make a decision concerning the way he lives the rest of his life? He's not a Thunt anymore, remember?"

"This . . . must be considered. This council will deliberate for one hour. You may return to your rooms." They were led out of the hall by the same

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guards that brought them. As they passed the seats of the Progenitors, Bubba caught sight of K'tine; he looked stricken.

Once back in their rooms, Hoss closed his door. Bubba was left alone with his thoughts.

"I wish I knew what was going on inside your head."

Bubba sighed. "Mike, there's nothing wrong with that boy. You heard what would happen if they decide to exile him. I can't let it go."

"I know this isn't a good idea, just like I know I could never talk you out of it. Just like I know, for all that it's the wrong thing to do, that it's more the right thing."

"You ain't so dumb after all, Mikey."

The door to Hoss's room opened, and he came out, having taken the opportunity to change clothes. He cleared his throat.

"Allen Poe Hudgins Pritchert." His words rang with ceremony. Bubba looked up at him.

"You have offered me family when I had none. You have offered me identity when I had none. You have offered me the most of what you are and all that you have. I must—" The door chimed before he could finish. A guard on the other side spoke.

"They are ready for us, Bubba," Mike said. "They have made their decision."

Bubba took a deep breath. "OK, Hoss, let's see what they have to say before you go any further." Hoss nodded slowly, and they left with their escort.

The hall was still filled when they returned, and the council and Progenitors had settled down. The two figures, human and Thunt, waited side by side.

Triad Governor M'nath stood, holding his arms up. "The third Trial is completed. Council has met with the Accused's Progenitors, and we have come to the following conclusions.

"First: the Accused, although guilty of a breach of ethics, did, in fact, forestall a war that would have had grievous consequences for Thuntun and its colonies.

"Second: upon consideration of the first conclusion, the council restores to the Accused his Identity, with all rights and privileges.

"Third: upon consideration of the first and second conclusions, the Accused's Progenitors restore to the Accused his name, with all that that entails.

"Fourth: upon consideration of the foregoing, and in light of the pain and suffering caused the Accused by these events, we award him damages in the amount of. . . . (Mike whistled. "That's a *lot* of money!")

"This council stands adjourned." The other Governors stood and filed out, followed by the rest of the council.

Bubba felt a hand on his shoulder and looked around. Hoss was leaking, or as close to it as a Thunt could come.

"C'mon, ya big baby. You're gonna have me doin' it."

"Bubba . . . I want you to know . . ." Hoss couldn't continue.

"I know, son. It's OK."

Hoss's Progenitors were gathering around them, embracing Hoss in turn

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and calling him by his Thuntic name: V'rinn, son of Bish, son of Prath, and so on. Only Leens seemed reluctant to do so, but her own Primes were standing grimly by.

"Bubba, my friend."

Bubba looked around to see K'tine and Rinn standing behind him. "Well, K'tine, you got your boy back. Rinn, you looked like you were bustin' a gut when I dropped that bomb on the council."

"You are one cocky sonofabitch," she replied, grinning, through Mike. "I thought my Four-Daughter was going to lose her water." She laughed out loud.

"Well, it was my pleasure. Say, I gotta see about catchin' a ride home. There a bus stop around here?"

"Stay a moment," K'tine said. "Progenitors and Progeny! I call you to gather here and now." Quickly Bubba found himself surrounded by Thunts. Mike said, "Uh-oh."

"Allen Poe Hudgins Pritchert, son of Edna, daughter of Howard, son of Clarence. Here and now, I offer you Family. I offer you Identity. I offer you the most of what we are, and all that we have." He took Bubba by the shoulders. "Here and now, I offer you the honor of being Side-Father to my son, V'rinn."

The others repeated quietly, "Here and now."

Bubba looked around in bewilderment. The faces around him were open, expectant; Rinn was nodding in approval. He didn't trust himself to speak.

"May . . . may I sit down? Please?" A chair was brought, and he dropped gratefully into it. "Don't that beat all? Talk to me, Mike. I don't know what to do, here."

"The status is like that of Godfather. It's honorary, but it has never, to my knowledge, been offered to a non-Thunt. They think very highly of you, it would seem. Not that I blame them."

"Thanks." He pulled out the rag he carried in his pocket, and wiped his eyes. After a moment, he stood to face K'tine. In a steady voice he said, "Your honor to me does you honor. If you'll have me, I accept."

Hoss grabbed him by both arms and lifted him off the ground, and he felt other hands holding him aloft. As they carried him towards the double doors, he thought wildly to himself, "Boy, I hope those things are high enough!"

The party that night broke records.

Finally, it was time to go. The cook presented him with a bottle of *rishth* (Bubba made a note to have it analyzed when he got back, and to see if Kirby could negotiate a trade license for those native herbs). K'tine took him aside and said, "Bubba, you are part of a large and wealthy family. If there is something of a material nature you want, it will be provided; we—*I*—owe you much more than can be said."

"K'tine, ol' buddy, there's really only one thing I've ever wanted since I was nine that I haven't been able to provide m'self with."

"Name it."

Bubba looked at him speculatively,

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then shook his head. "Naw. It's too late and I'm too damn old. C'mon, Mike. If we hurry, we can just miss the Jetsons." As Hoss left with him, he gave his father a knowing wink.

"Honestly, Bubba," Mike said one night not quite two weeks later. "How can you, even as a joke, listen to this nonsense? *Authentic Music From Another Planet*, indeed."

"Hey, I figured it had to have *some* validity, considering your reluctance to talk about the guy who recorded it."

"Howard Menger? My reluctance to talk about him has little to do with whether or not this mindless dweedling on a piano in the middle of an enormous echo chamber is gas music from Jupiter."

"Oh, it's harmless. It's not like I'm askin' you to add it to the database, after all."

"Just a second." Mike said suddenly. "I'm detecting a magnetic anomaly headed this way."

"Again!?" Bubba cried.

"I suggest you open the garage doors quickly; it doesn't seem to be slowing. Wait!" he added quickly, as Bubba lunged to his feet. "Take me with you!"

"Shit!" Bubba grabbed him, raced into the garage and hit the switch that opened the big double doors. As they slid apart, he rushed out into the evening air, scanning the sky overhead. A light seemed to be growing brighter and larger as he stared at it.

With a nearly inaudible whoosh of displaced air, the flying saucer dipped to a level about three feet off the ground, and without pausing skimmed neatly through the open doors and into the garage, where it settled to the ground. Bubba, eyes wide and mouth gaping, stood unsteadily to the side, unsure of whether to shit or wind his watch. He'd seen this saucer somewhere before—many, many times, in fact, although only in fuzzy photographs.

Somewhat bell-shaped, it had a domed top with portholes around the base, a flanged and fluted body, and a trio of large spheres underneath. A certain café worker, amateur astronomer and supposed contactee would have recognized it instantly, if a bit shamefacedly.

Noiselessly, a hatch opened in the body, and Hoss gingerly stepped out.

"Side-Father, I greet you and bring you a gift from my Progenitors—and myself."

"Uh. . . ." Bubba replied.

"You should probably shut the doors, Bubba," Hoss said with a twinkle. "Somebody might see it."

"Uh. . . ."

Hoss reached out and pressed the switch, and the garage doors ground shut again.

"It's a 1953 Adamski Scoutship. The only one in the known Universe like it, according to Mike."

"Actually," Mike said, "it's just a standard Thuntic scout with a little extra body work. We all thought you deserved it."

Bubba stepped closer to the ship and gingerly raised a hand to touch it.

"My own . . . flying saucer?"

"Yep," Mike said.

"But, wait a minute, how do I fly

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this thing? I don't have the slightest idea . . . "

"If you can drive a car, you can fly this," Mike said. "It conforms to FAA regs covering ultralights, and it *won't* let you crash. It even has running lights."

"I don't . . . I don't know what to say, boys," Bubba said softly.

"How about, 'Well, dip me in dog shit!'" Mike answered.

Two weeks later, after much nocturnal practice, Bubba took it out through the big garage doors and up into the sky. It was noiseless, and, like Hoss's scout-ship, radar transparent. He picked up the cellular phone and dialed a number.

"That you, Bubba?" said a familiar voice.

"Yep. Get your ya-ya's on, Kermit, we goin' for a *ride*."

"Great. Another road trip to Frog Level, I suppose. I guess you'll want me to kick in for gas this time?"

"I don't believe," Bubba replied, "that that will be necessary, Mr. daFrog. See you in ten."

"You know," he said aloud to himself, "Water-Rat was right. There really is nothing—absolutely *nothing*—half so much worth doing as simply messing about in a flying saucer." Cackling, he headed west into the setting Sun.

And just for the hell of it, he buzzed Clint Miller's cows. ■

EDITOR'S NOTE: This story is a sequel to "Bubba Pritchert and the Space Aliens," in our July 1994 issue.

MOVING?

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Probability Zero

Dean McLaughlin

ALWAYS, THERE'S SOMEBODY DOESN'T GET THE WORD

Ever wonder why "psychic fairs" have to advertise?

Muttering to myself, I dialed, then listened to the usual hiccups as connection was made. At last came the signal it was ringing at the far end. Once. The expected pause like a deep breath. Then again.

Answer the blipping phone, thought I, projecting as strongly as I could. Even with the Moon not right for me just then, they should have heard. Presuming they wanted to, that is.

Buzz number three. Finally, clicking again.

"Hi." Unmistakably a recording; I'd been shunted to the voicemail thing. Deliberately, I'm sure. They knew how Nadia's chirpy voice clanged my sensibility. "You have reached the offices of the Universal Psychics' Association. We already have your vibes, of course, so you really didn't need to go to all this trouble. If you're having difficulty establishing two-way, it's because all our staff are on some other channel."

Uh huh, thought I. So you had a phone put in just so the telepathically challenged could talk at you. I'm expected to cheer or something?

"We'll have someone appropriate on the line soon as we can," Nadia's chirp proceeded, "but to simplify, this mechanical system isn't sensitive, so if you're deaf or mute—you understand what we mean, do you not?—and you're phoning on a matter of mundane business, please press one."

I am not of that category. Neither do I have a touch-tone phone.

"If you wish to leave a message—you really don't need to, you know—press two."

If I wanted to leave a message, I thought, I would carve it on a rock and drop it on that insolent toy. I do not have a touch-tone phone.

"If you believe yourself qualified for membership but have been unsure how to proceed, leaving aside how you could qualify if that's the case, you may apply by phone if you wish—you realize it's not efficient, don't you?—press three."

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I'm a member already, I thought loudly, and I still don't have a touchtone phone.

"If you're a member, but are using this crutchlike system to get our attention—we can't think why—press four."

You *know* I don't have a touchtone phone, I muttered mentally. Stop with the arrogant needles, already.

"If you are calling from a piece of old-fashioned equipment," Nadia's voice proceeded—just for me, thought I sarcastically, "please hold. We'll have someone on the line as soon as we can."

For a blessed instant then, silence. Nadia's voice would irritate equally a parrot, a gorilla, or a clam. I'd have gladly waited serenely thus, but that would have been too merciful. Clickclick, and I had music to keep my interest while time ticked slow. Brahms? Rachmaninoff? No such luck. East Wind, Rain scorching the optical fiber with their platinum, "Whips and Chains Just Ain't the Same When It's Naugahyde." I could either endure or hang up and try later.

I cast my mind forward. If my talent was in phase—which, it being the Moon's first quarter, it almost certainly was—a special treat waited. The Right to Life Death Squad, doing their "Hymn to the Creature from the Black Lagoon." Gritting teeth, I elected to stick it out.

My mistake. As "Naugahyde" faded into obscurity, East Wind, etc. promptly commenced, "Chainsaw Lunch." They had a thing about chains. This little ditty jackhammered my eardrum for exactly three minutes, seventeen seconds—I'm perfect with that skill, even if no one appreciates—before it broke off in midscreech with the same sort of brisk double-click which began the entertainment, after which Nadia's voice came as the most beautiful sound in the world. "Hi, Harold."

Is it possible she was telling me something?

"Hi, Nadia," said I suavely. "How are ya?"

"You're fine," she replied. "How'm I?"

That gag, I'm told, was found in the Dead Sea Scrolls along with attribution to yet-undiscovered Ancient Writings. I bit my tongue. "Just trying to be polite," I said. "You need to have your gall bladder taken out but you don't have the nerve. Look, let me talk to Max, there's a doll."

"Actually, it's my spleen, and he's on a different channel, just now," she tweaked. "As you probably know."

Well!

"Just tell him I'm waiting," says I.

"Sure thing, Harold. Anything you say. You think he doesn't know?"

At that point, anything I said would have curdled the cable. Metaplasm is more resilient. I let the information make transfer and waited silently. Well, almost silently. Double-click again, sounding much like a snicker, and the entertainment resumed. Now it was Prong and the Circumcisions, their version of "Lady, We Can't All Be Elvis." They didn't play it right, and their drummer—as usual—got confused about which hand was doing what.

Mercifully, it persisted only long enough to numb one side of my body,

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scalp to little toe, before another snicker delivered Max's mellifluous tones. "Howdy, Harold. How come you're using the phone?"

Rubbing it in. "Howdy," I grumbled. "Max, you know I'm erratic. I'm in precog phase right now, and when I'm that, can't do mindreach. We went all through that, didn't we?"

"Ah, so we did," says Max. "Some of us manage."

Superior schmuck. "Some of us can't be everything all at once."

"True," he admitted, but did I imagine that air of pity in his voice? "Has it ever occurred to you, Harold, merely by reorienting your precog it would become mindreach?"

"I know that's the theory," I said. "But that puts it right in the middle of one of my blind spots. I'm supposed to bite my elbow or something?"

"It's actually quite simple, Harold," Max said. I had this flash of a shrug, bright clear for an instant, but it went away. The showoff. "So what are you calling about?"

"You don't know?" I asked archly. Gotcha that time.

"Well, now that you mention," he condescended. "Merely trying to facilitate our exchange. You know how it is."

Talking to me like we talk to the speechless and blind, pretending it's really not their fault they're inferior. I seethed but suppressed; well, most of the way. "Why did we start sending meeting notices?" It just burst out.

"Oh? You received one?"

"You know I did."

"Well, actually, of course I do."

"Uh huh." Impossible to strangle a man over the phone. *I* can't, that is. There have been whispers. "So why?" I inquired.

"I knew you'd ask," said he.

Belaboring the obvious. "Maaax!" I complained.

"It's really very simple, Harold," he went on smoothly, pretending not to have heard. "Aren't you the one who wanted to eliminate the riffraff from our organization? The pretenders who don't really have it?"

"What's that got to do with it?" I demanded.

"Why, everything, Harold." As if explaining to a child. "After all, they've been paying dues for years. We can't just tell them now that they're not welcome anymore. It would be terribly unkind."

"Huh? How's that follow?" I wanted to know.

"So we've created a sort of auxiliary, only we don't call it that, and sidetracked them into it. They'll be much happier with just themselves and never suspect a thing."

"That's not what I asked," I said. "I want to know—"

"Our real meeting will be somewhere else," he said. "At a different time."

"Oh," said I, for a moment awed by this cleverness. Then, catching breath, thoughts came. "But—"

"Do you know where?" he asked, adroit as ever. "Do you know when?"

"You know I don't," I said, suddenly desolate.

"Well, that sort of says it all, doesn't it?" Max said. "Bye, Harold." And hung up.

I guess it did. ■

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Ben Bova

EXTRATERRESTRIAL LIFE: A NEW ERA BEGINS

A new era has begun in the quest to find extraterrestrial life. Like all new eras, this one is based both on new ideas and new observations.

The first era of this quest began in 1957, when Giuseppe Cocconi and Philip Morrison formally proposed using radio telescopes to search for intelligent signals from the stars.

"Few will deny the profound importance, practical and philosophical, which the detection of interstellar communications would have," they wrote. "The probability of success is difficult to estimate, but if we never search the chance of success is zero."

Unfortunately, zero is exactly the amount of success that has been achieved. So far.

For nearly forty years radio astronomers have been seeking signals from alien civilizations in a program called SETI—Search for ExtraTerrestrial Intelligence. Hampered by low budgets and limited observation time, SETI has not detected any traces of intelligent radio signals.

The problem, of course, is that the Universe is vast and there are so many possible frequencies for radio communication. While government funding for SETI has fluctuated from minuscule to none, the Planetary Society has financed a dedicated search, using the 84-foot radio dish at Harvard, MA, and sophisticated electronics with an 8.4-million-channel spectrometer, and 400 KHz of total bandwidth.

Meanwhile, spacecraft have probed every planet of our Solar System except distant Pluto. No trace of life has been found. Not even organic molecules, until the Galileo mission, which included a probe sent into Jupiter's deep, turbulent atmosphere in December 1995.

Launched in 1989, the Galileo spacecraft spent six years in space before it reached Jupiter in December 1995. Without sufficient rocket thrust to get to Jupiter even on a minimum-energy trajectory, Galileo was ping-ponged from Earth, past Venus, around the Sun, and back again, building up energy from gravitational boosts until finally it had the proper velocity for its ultimate encounter with Jupiter.

On its way, it gave us the first close-up pictures of asteroids, examining Gaspra in 1991 and Ida in 1993.

The spacecraft orbiter will make 11 orbits of the giant planet over 23 months, making close flybys of each of the four Galilean moons. Sensors

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will also study Jupiter's tenuous rings and its massive magnetosphere.

An atmospheric entry probe separated from the main spacecraft and entered the Jovian clouds 7 December 1995. Slowed by a heat-shield aeroshell and then by parachute, the Galileo probe carried the first instruments to enter Jupiter's tremendously deep atmosphere. The probe transmitted data for 58.5 minutes as it sank into Jupiter's deep, turbulent atmosphere, about 20 minutes longer than required for the mission's primary scientific objectives.

About half an hour after the last data transmission, the temperature of Jupiter's atmosphere was more than 1,200 F, hot enough to melt the probe's Dacron parachute. Within six hours the probe plunged to a depth of more than 600 miles below the cloud tops, where the 3,000 F temperature melted its titanium structure.

Data transmission from Jupiter was slowed by the fact that Galileo's main antenna never opened fully, but preliminary analysis showed that the Jovian atmosphere contains neon, argon, hydrogen sulfide and organic compounds, including hydrocarbons, ammonia and methane. This is the first time organic compounds have been found on any of the planets of our Solar System.

Water vapor was unexpectedly low and two heavy inert gases—krypton and xenon—unexpectedly high. Astronomers believed that the probe would find considerable water vapor, since Jupiter is rich in hydrogen and oxygen should be as plentiful as it is in the Sun. Also, many of Jupiter's moons are covered with water ice.

However, only about one-tenth of the expected amount of water vapor was detected by the Galileo probe's mass spectrometer, a finding that puzzles planetary astronomers.

Yet the discovery of organic chemicals in the Jovian atmosphere gives hope that life may exist deeper beneath Jupiter's cloud decks.

Except for this tentative finding, as far as the first era of the search for alien life is concerned, the results have been disastrously disappointing. In fact, until 1995, no one could even say for certain whether other stars had planetary systems orbiting around them.

Extrasolar Planets

Of course, theory predicted that other stars would form planetary systems just as our Sun did. And in recent years, space-born sensors detected dust clouds surrounding several nearby stars, disks of debris that are assumed to be the building material for planets.

But planets are small and dim, and so close to their parent stars that their reflected light is drowned out in the glare of the stars themselves. It should have been no surprise, then, that the first planets to be found orbiting another star were discovered by radio astronomers.

No surprise. But a heartbreak to those seeking living alien civilizations.

The first extrasolar planets to be discovered were found orbiting around a pulsar, PSR B1257+12, in the constellation Virgo: a neutron star that rotates hundreds of times per second.

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Astronomers studying the pulsar with the thousand-foot Arecibo radio telescope in Puerto Rico detected tiny fluctuations in the arrival time of the star's radio signals, which suggested that the pulsar wobbles as it moves through space. They concluded that the best explanation for the wobbling would be the gravitational tug supplied by two or possibly three unseen planets orbiting the pulsar.

Planets around a pulsar? Pulsars are the remains of stars that have undergone supernova explosions. Could a planet survive such a cataclysmic blast? Or have these planets formed after the supernova explosion, accreting out of the debris left around the neutron star?

Either way, those planets do not seem to be attractive sites for life.

Planets of Sunlike Stars

For decades astronomers have tried to ferret out the presence of planets around our stellar neighbors by looking for slight wobbles caused in a star's motion by the gravitational tug of unseen planets.

Peter van de Kamp, at Swarthmore College outside Philadelphia, PA, pioneered this astrometric technique. In the 1950s he announced that he had found slight wobbles in the paths of several of the nearest stars, including Barnard's Star (6.1 light-years away) and Lalande 21185 (7.9 light-years), caused by "unseen companions": i.e., planets.

Yet other astronomers were unable to duplicate van de Kamp's findings. Some even claimed that the telescope and sensors van de Kamp used were incapable of making such precise measurements.

More recently, instead of trying to measure slight changes in a star's position in space, astronomers have developed a more sensitive technique, based on spectrographic analysis. By taking spectra of a star and looking for the Doppler shifts in the starlight caused by the star's motions, astronomers can measure extremely small motions.

In mid-1995 this technique paid off—twice. Planets have been discovered orbiting two stars: 51 Pegasi (42 light-years away) and GL229 (30 light-years). The discoveries have been confirmed by other observatories and accepted by the astronomical community.

The spectral class of 51 Pegasi is G4, its absolute magnitude is 5.0. It is a yellowish star, as the Sun is: a little cooler than the Sun, which is a G2 spectral class, but slightly brighter than the Sun's 4.8 absolute magnitude. This implies that 51 Pegasi is somewhat larger than the Sun, but it is definitely a stable, sunlike, Main Sequence star.

The planet orbiting 51 Pegasi is almost as massive as Jupiter, yet its orbit is only one-sixth that of Mercury, the closest planet to our Sun. It orbits around 51 Pegasi in just 4.2 days. How can such a massive planet exist so close to its star? If you towed Jupiter that close to the Sun most of its gaseous material would be quickly boiled away into space.

Perhaps the planet is not a gas giant, as Jupiter and the other large planets of our Solar System are. Per-

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haps there are more ways to form planets than we have seen in our own Solar System.

GL229 is a red dwarf star, about four-tenths the mass of the Sun. Its planet, orbiting about 44 astronomical units away (roughly as far as Pluto orbits from the Sun), is a supergiant, 20 times the mass of Jupiter. Some astronomers are wondering if it should be classified as a planet at all.

Perhaps it is a "brown dwarf," a body almost massive enough to trigger thermonuclear reactions in its core and thus become a true, shining star. Almost massive enough, but not quite. Brown dwarf stars would radiate in the infrared, giving off heat from their slow contraction. GL229's companion was detected by infrared sensors. It has been photographed in infrared and visible light by the Hubble Space Telescope.

Now we know that other stars have planets. And we can see that our Solar System is probably not the "standard model" for other planetary systems!

Bugs in the Dark

Several years ago, Antarctic researchers found lichen living a few millimeters below the surface of south polar rocks. They absorb heat from the rocks when they are warmed by the Sun, and they use sunlight to power photosynthesis. They obtain water from frost that forms on the rocks. I postulated this type of flora existing on the red planet in my novel *Mars*.

In 1995 researchers in Washington state discovered an even better candidate for Martian life forms.

More than 3,000 feet beneath the ground, deep in the basalt rocks that form the bed of the Columbia River, scientists from Pacific Northwest Laboratory discovered microbes that do not need sunlight. They exist without depending on photosynthesis, even indirectly.

These microbes derive energy from hydrogen generated in a reaction between iron-rich minerals in the volcanic basalt and ground water.

They do not require oxygen.

Microbes have been found living in the sediments at the ocean's bottom, and whole colonies of creatures have been discovered thriving around boiling-hot vents in the ocean floor. But these life forms depend on oxygen in the sea water, which is generated by photosynthetic algae up near the ocean's surface.

The underground microbes have been dubbed "slimes" by their discoverers, a rather sloppy acronym for "anaerobic subsurface lithoautotrophic microbial ecosystems." Anaerobic means they exist without needing to breathe oxygen; lithoautotrophic means they eat rocks.

Biologists are excited about the slimes because they may be showing how life existed on Earth at the very beginning, before the "invention" of photosynthesis.

The excitement goes beyond our planet, however. Slimes could exist on Mars. Buried deep below the red planet's surface, where harsh radiation, sub-zero temperatures and superoxides in the soil present a terribly hostile environment, slimes could be living quite contentedly below-

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ground, drawing water from the permafrost below the surface and metabolizing rock.

The Second Era Begins

With the discovery of organic chemicals on Jupiter, extrasolar planets and life forms that might be able to exist on Mars, the search for extraterrestrial life is entering new territory. What is needed is a new outlook, a point of view that can carry the quest beyond the limits of the radio-telescope work of SETI and truly establish a second era in our quest for extraterrestrial life.

The second era actually began in this magazine's June 1968 issue, with an article by (ahem!) me: "It's Right Over Your Nose."

In that article I suggested, with tongue only partially in cheek, that the quasars—which still puzzle astronomers—might actually be the exhaust wakes of interstellar spacecraft: starships.

That proposal is highly unlikely, but behind it lay a valid point: if we are seeking extraterrestrial intelligence, why don't we look, in addition to listening? Instead of waiting by our radio telescopes for a call that might never come, look for signs of extraterrestrial intelligence. Look for optical signals. Look for something that moves. Look for starships.

And that is exactly what a few astronomers are now proposing to their colleagues. Dr. Stuart A. Kingsley, director of ETI Photonics in Columbus, Ohio, has even set up an optical SETI observatory at his home.

He points out that optical SETI offers great advantages over radio searches, because lasers are much better communications tools than microwave transmitters, over interstellar distances. Laser communications offer higher received signal strength and signal-to-noise ratio, as well as lower dispersion as the signal traverses thousands of parsecs.

Bright laser signals eliminate the need to scan millions of frequencies to find the one the aliens are using. If they use lasers in the visible spectrum, we'll be able to see them. Even if they use wavelengths invisible to our eyes, such as infrared, we can scan broad swaths of those frequencies with existing detectors.

Pointing out that photonics and fiber optics systems are already replacing radio-frequency communications here on Earth, Dr. Kingsley adds that optical SETI observations could be carried out in broad daylight if the aliens are using high-power pulsed lasers as "attention getters."

Can We See Starships?

In addition to looking for communications signals, we should also be looking for starships. After all, if there are intelligent aliens out there plying the star lanes, they should be leaving some recognizable signatures in the sky.

What would a starship look like from Earth, if we imaged one in our telescopes?

Undoubtedly, we would not see the ship itself, no matter how large it might be. After all, we have not yet been able to image Jupiter-sized planets over interstellar distances.

But, assuming the starship uses anti-

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matter propulsion, we would be able to see its signature: the extremely energetic cloud of exhaust gas—plasma, really—that the ship's antimatter drive emits. The huge cloud of high-temperature plasma would show an enormous redshift.

The cloud would be so energetic that it would be radiating principally in gamma ray frequencies, although we would see it redshifted down into the blue region of the visible spectrum. It would also emit a considerable amount of energy in radio wavelengths from electron excitation. The cloud's brightness might change abruptly as the engines' power settings are revved up or down.

Have we seen anything like this? Yes. We call them quasars. This chain of reasoning was the basis for my 1968 *Analog* article.

The standard model of the quasars, of course, views them as very young galaxies that exhibit extremely high redshifts. The redshifts are assumed to be due to the expansion of the Universe, and therefore associated with their distances. The quasars are thus presumed to be "cosmologically" distant; most of them out at the edges of the observable Universe.

"Cosmologically" distant quasars are apparently emitting as much energy as a thousand Milky Way galaxies, from regions not much larger than the Solar System. This enormous power is thought to be generated by exceedingly powerful black holes gnawing away at their cores.

"Naked" Quasars

If the standard model is correct, then quasars should be imbedded in galaxies. If we could see them clearly enough, we should see the very bright quasar in the heart of the swirls of stars and gas that make up the outer regions of the Galaxy.

Yet in 1995, astronomer John Bahcall of the Institute for Advanced Study in Princeton, New Jersey, announced that studies of 14 quasars with the Hubble Space Telescope showed that there were no galaxies around ten of the quasars. "We've taken a giant step backward," said Bahcall. "We need to rethink how quasars shine."

This discovery of "naked" quasars means either: (1) the naked quasars have already consumed their host galaxy; (2) the host galaxy is too faint to be seen against the glaring light of the quasar; or (3) at least some quasars have nothing to do with galaxies.

A vocal minority of astronomers have argued, since the first discovery of the quasars, that they are not "cosmologically" distant at all, but are "local"—that is, as close as nearby galaxies, not out at the edge of the observable Universe.

If the quasars are local objects, it would mean that their energy outputs are much more reasonable. The closer they are, the more their brightnesses are due to nearness rather than intrinsic luminosity. It could also mean that the quasars are not at the cores of young galaxies.

Perhaps the quasars are not merely "local," in the sense that they are associated with nearby galaxies. Perhaps they are well within the Milky Way it-

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self, starships plying the interstellar trade routes. If they are within our own Galaxy, they would be much smaller, and their energy output consequently also smaller, than even "local" quasars would be.

Their redshifts, in this case, would be due to their intrinsic velocity. They are starships flying as close to the speed of light as their antimatter drives can propel them.

Where are the Blueshifts?

Why are they all redshifted, moving away from us? Because (perhaps) those are the only ones we have noticed. After all, astronomers have been on the lookout for objects showing significant redshifts since the 1920s. Blueshifted objects would be much harder to detect, because a blueshifted cloud of hot rocket exhaust would be shifted up into the very highest gamma-ray regions of the electromagnetic spectrum.

The only way to detect such objects would be with satellite sensors; the Earth's atmosphere absorbs gamma-ray wavelengths. Otherwise our form of life could never have arisen and slimes would be the apex of evolution on Earth.

Interestingly, since the 1960s satellites have detected bursts of gamma radiation that seem to be coming from all around us. Some astronomers believe there are powerful gamma-ray sources far out in intergalactic space, "cosmologically" distant. Others argue that the gamma-ray "bursters," as they are called, come from a halo of neutron stars on the fringes of the Milky Way.

Could they be blueshifted starships? Probably not. But astronomer Michael J. Harris of S. M. Systems and Research Corp., Landover, MD, has suggested looking for gamma ray sources that exhibit proper (i.e., transverse) motions across the sky.

"Look for something that moves," Harris says. A ship moving at nearly the speed of light would show a proper motion across our field of view of a few degrees per year if it is within our Galaxy. There goes my quasar idea: the quasars aren't moving transversely. If I were given to puns, I'd say that they aren't moving properly.

Harris's studies of the gamma-ray sources, to date, have turned up nothing. The gamma-ray "bursters," Harris believes, are distributed too isotropically around the sky to lie within the Milky Way.

Guillermo A. Lemarchand, of Cornell's Center for Radiophysics and Space Research, has suggested a wide-ranging strategy for searching radio, optical, and higher-energy electromagnetic wavelengths, as well as trying to detect subatomic particles and even seeking alien space probes.

"Direct interstellar contact methods," Lemarchand wrote in *SETIquest* (September 1994) "may range from radio and optical beacons . . . to interactions with robot or crewed star vessels."

In seeking evidence of extraterrestrial intelligence, it is becoming clear that we have many more options than listening for radio signals. Even if the quasars are not starships, we can and should—as Harris says—be looking for "something that moves."

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What to Look for on Mars

The discovery of slimes means that future expeditions to Mars, robotic or crewed, should be prepared to dig deep in the search for rock-eating, hydrogen producing microbes.

And more.

Mars has been more heavily bombarded by meteoroids than Earth, which is not surprising, since Mars is much closer to the Asteroid Belt, where meteoroids presumably originate.

There is an impact basin called Hellas Planitia (the Plain of Hellas), a gigantic crater, roughly 1,200 miles wide and several miles deep. On the opposite side of the planet lies the Tharsis Bulge, where the great Martian volcanoes have arisen.

Did a massive meteoroid smash into Mars hard enough to gouge out Hellas Planitia, send a shock wave through the solid body of the planet and raise the Tharsis Bulge and its volcanoes? If so, the shock of that impact might have been so severe that it blasted most of Mars's atmosphere out into space. Or caused a planet-wide "nuclear winter" type of dust cloud that blotted out the Sun for months or years.

Either way, such a meteor impact could have wiped out whatever life might have existed on Mars. Perhaps the first human expeditions to Mars should include paleontologists.

Earth-like Planets?

To date, no instruments can hope to detect an Earth-like planet orbiting even the nearest stars.

In 1997 NASA plans to install the Near Infrared Camera and Multi-Object Spectrometer (NICMOS) on the Hubble Space Telescope. NICMOS should be able to detect a planet orbiting a star as distant as 400 light-years away, if the planet is at least six times more massive that Jupiter, and its orbit is farther from the star than Jupiter's is from the Sun.

Will it be able to detect Earth-like planets, if any exist, around the closest stars? Will it vindicate the observations of van de Kamp and image planets around Barnard's Star or Lalande 21185?

The second era is just beginning. ■

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Doug Larsen

THE CONTENT OF THEIR CHARACTER

Like any powerful tool, information can be abused. . . .

I heard my sister clear her throat nervously, and her husband shifted uncomfortably beside her. Around us, the general hum of people in the cafeteria didn't distract me from my three visitors.

My nephew Kenny vented a gusty sigh of boredom. My sister Vera probably shot him a warning look, because he made an annoyed noise in his throat.

"So," Vera said in an artificially bright tone, "what are your plans for this weekend, Jim?"

"Nothing much," I said. I never had anything much. I'd probably just sit and feel bad. I scrambled for something else to say. Visits from my sister and her family were horrible, but they were all I had, and I was terrified of losing them. "Maybe I'll listen to the radio," I added lamely. I couldn't think of anything else to say. Kenny let loose an almost muffled guffaw.

Sometimes I wondered if living in that care facility was such a good idea. At first it had been very liberating, not having to cook for myself, and getting help with the housework. And the other residents had been friendly, although they had since learned to leave me alone. But now I wondered if housework would have forced me to do something besides sit in my room and wonder why I had been so cursed to be born blind.

I could work on a software program over the weekend, but I knew I wouldn't. Several years ago, I had developed a program that had been a moderate success on the national scene, and so I had enough money to live comfortably. Another reason to not do anything.

My big sister Vera did the best she could. She visited once a month, and dragged her husband and son along, although it was obvious that they hated it.

I didn't like them either. Vera's husband was no more interesting than I

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was, and their son Kenny was snide and nasty. I called him Ken to his face, but I thought of him as Henny Penny Kenny—a derogatory nickname that he hated. It was my little revenge for all of the putdowns I had to endure from him.

Most of the other residents of the care facility were forty or fifty years older than me. They were retired people who were still fully mobile, but liked the convenience and social opportunities offered by living in an apartment with social areas and a dining room. They were vigorous, intelligent, happy people, and I had no time for any of them. They had had a life. They still had a life. I never had.

Kenny sighed again, but I ignored it because I heard a bright, cheerful voice behind me. Rachel. I hoped she was heading my way.

Rachel, the center's social director, was the only bright spot in my life. She knew everyone in the center by name, and genuinely cared about every one. She had a unique gift for showing concern for someone without showing pity. She was about my age. And she liked everyone. Even me.

Of course, it was her job to do all of this. I kept reminding myself of that. Why else would she exhibit any interest in a social, emotional, and physical cripple like me?

"Hi, Jim," she said as she squeezed my shoulder in a way I'd come to love. "How are the four of you doing today?"

Vera's family muttered suitable answers, but I sat up straighter. "Hi, Rachel," I said in as hearty a voice as I could. "We're doing fine, thanks. How about you?"

I heard Kenny snigger again, and heard him whisper, "He's interested in *her??*" but Rachel had already moved on to the next table.

When Vera and her sighing family finally left, I went back to my apartment to lock away the outside world and be by myself. It was a two-bedroom unit, so it had plenty of room for me to sit and do nothing, and that was precisely what I planned to do. But I had barely settled into my armchair when there was a knock on the door.

I sighed in irritation, and called out, "Come in."

The door opened slowly, and I heard Rachel's voice.

"Jim? Can I come in?"

I was always glad to hear Rachel's voice, so I made my tone a little more pleasant. "Come on in, Rachel."

She came in slowly, and it sounded like she wasn't alone. "Jim," she said hesitantly, "I've brought you a prospective roommate."

"I never requested a roommate," I said uneasily.

"I know," she said, "but I think you'll like him, and I just wanted you to meet him."

"Why?"

Before she could answer, a man's voice came from behind her. "Because we have a lot in common," he said.

I was rattled. "Who are you?"

"You're Jim, right?" the voice answered. "I'm Jim, too."

"Oh. Hi, Jim Too."

He chuckled, not at all put off by my rude tone. "You're a computer

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programmer," he continued. "So am I. You're in your mid-thirties. So am I. And since you have the good taste to have such a great first name, I think we'll get along fine. Except I'll call you James, so I'll know if I'm talking to you, or to myself."

I laughed, in spite of myself. "What are you doing in this care center?"

His voice took on some emotion under his humor. "Well, that's the best part, James. I'm blind, too. I've been blind for fifteen years."

Blind! For fifteen years! That meant more than fifteen years being able to see! What was worse—never seeing, or once being able to see, and then losing it? "Wow," I said lamely. "Well—see—if I wanted a roommate, I'd probably pick you. But, see, I'm not looking for one."

Rachel spoke, her voice aimed at the other Jim. "Jim, could you wait in the hall for a minute, please?"

"Sure," Jim said, and I heard the door close. Rachel walked over to me and sat down.

"I don't want a roommate," I said with as much conviction as I could gather.

"Jim, listen to me," she said firmly. "I've been worried about you. I don't think it's healthy for you to sit up here alone so much. I've found you an intelligent, friendly man who was interested in a single until I talked him into having a roommate. I want you to try this."

I couldn't say no to Rachel. And maybe she was right. My life stank right now. "OK," I said meekly. "I'll give it a try."

She squeezed my arm, which was quite nice. "You won't regret it."

I only had two days to get used to the idea, and then the care center's staff moved Jim's stuff into my second bedroom.

"Where should we put this armchair and couch?" one of the moving men asked.

"It's living room stuff," Jim said. "Would it be OK if it went there, James?"

"Sure, I guess."

I heard light, strong footsteps that I knew belonged to Rachel. "Everything's working out in here, right?" she asked the room in general.

"Sure, sweetcakes," one of the movers said.

"Fine," Jim and I said in unison.

She walked up to us. "The first evening will probably be a little uncomfortable for both of you," she said. "I suggest you chat about each other, and start to get to know each other a little."

I had been planning on hiding in my bedroom, but I knew she was right. I dreaded the moment when everyone else left the apartment, and Jim and I were alone. Luckily, Jim took charge.

"Well, James," he said, obviously sitting down, "I think we should clear up some important things first."

"Like what?" I asked apprehensively.

"TV shows, of course," he said with a chuckle. "I hate to miss the *News Hour with Jim Lehrer.* Any problems with that?"

He had a way of making me laugh, whether I wanted to or not. "No

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problems there," I said.

"So far, so good. OK. On *Gilligan's Island*: Ginger, or Mary Ann?"

"What??"

"Did you like Ginger or Mary Ann better?"

"Well—Mary Ann, I guess."

He got up, groped for my hand, and shook it. "James," he proclaimed, "we're gonna get along great."

"You're the strangest person I've ever met," I said, trying not to giggle.

"Well," he conceded, "I have to admit that I'm a little nervous. I'm not usually this strange. Although my sister's family would disagree."

"Give me a family rundown," I requested. "And what brings you here."

"Ah, I can do that short and sweet," he said. "My sister and her family are all that are left. I lived with her, her husband and two kids. I loved it, and I like to think they did too. But when they were caught by surprise with another pregnancy, I figured I had to do the noble thing and make room."

"Very gallant," I said.

"Shucks," he said. "What can I say? You'll probably be seeing them quite a bit, because they threatened to visit often. We're pretty close."

"Well, you're one up on me," I said. I told him briefly about Vera, her husband, and Henny Penny Kenny.

"Sounds gruesome," he sympathized. "Why do you bother seeing those two?"

"Vera brings them along," I said. "Otherwise, I wouldn't."

He was silent for a minute, then spoke up. "James, this is none of my business—incidentally, you'll hear me say that a lot, right before I stick my nose into your business—but if you took the initiative on this relationship, you'd have control. Why not invite Vera out for lunch, without her husband or Henny Penny Kenny?"

"I never thought of that," I admitted. I had never dared think of it, because it would have meant losing two-thirds of all of the human contact I had. But it suddenly felt like I didn't need it as much as I used to.

A couple of hours later, when we had *Jim Lehrer* on, Jim broke the silence. "Trivia question," he announced. "Name the first black woman to break the segregation barrier at the University of Georgia."

"I don't have the foggiest idea," I said.

He turned up the volume on the TV. "Her," he announced. "Charlayne Hunter-Gault. Got her degree in journalism."

"How on *Earth* do you know that??"

His voice lost its good humor. "When I lost my sight to diabetes when I was sixteen, the only thing that kept me sane was books. Talking books, of course. I read everything and anything. Learned Braille, too. Somebody's done a good job of making that stuff available to blind people. I'm telling you, James, it saved my life."

"Wow." I was silent for a moment. "I was born without an optic nerve," I said finally. I had never talked about this with anybody. "It was pretty damned rough, growing up blind. But I suppose losing it when you used to have it, that's got to be even worse."

"It was no walk in the park, I can tell you that," he admitted. "Although,

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it made it possible for me to be able to tell you that Mary Ann was prettier than Ginger, too."

I laughed in surprise again. I got the feeling I was going to be doing a lot of that.

We waited until the show was over—and then we broke out our canes and went down to dinner.

"I would introduce you around," I said, feeling embarrassed, "but I don't know many people."

"Don't worry about it," Jim said. "I'll manage. You just get me there, OK?"

"OK," I said. "Notice, here where the carpet stops. It's ten paces on the tile, and then you get to two steps."

"Ten paces, two steps," Jim repeated.

"And then you're in the lounge area that doubles as the waiting area for the dining room. There's chairs everywhere, but I usually use the ones to the right, along the wall."

"Sounds like a plan," Jim observed.

"Have a seat," I said. "I'll check in with the concierge."

"*Concierge?*" Jim repeated. "This is a very classy joint."

I laughed and headed toward the concierge. Behind me, I heard Jim saying, "Hi, my name's Jim Thompson. I'm new here." A group of elderly voices answered in a chorus of welcome.

I had lived here for years, and had never had the nerve to do that.

When we were seated, Jim was enthusiastic. "Did you know there's a couple here who used to be doctors in Indonesia? And a retired pastor who has written three theological books?"

"No," I said, feeling humiliated. "I didn't know."

Rachel must have briefed him about me, because he didn't act surprised, or ask why. "Well, this is a cool place."

I stuffed a forkful of potatoes into my mouth so I wouldn't have to answer.

"They told me about a group they have named SUDS," Jim continued. "It stands for Society of Undiluted Danes."

"I wouldn't qualify," I said.

"Well, I wouldn't either," Jim said. "But they said they offer Honorary Memberships to anyone. They said their sole purpose is to get together and laugh a lot. I mentioned I'd like to join, and they told me, 'hell, then you're already a member!' It seems like there are a lot of friendly people here."

I put down my fork. "Where exactly do you get all of this enthusiasm?"

"What?"

"You're sounding like Pollyanna. Where do you get it?"

"I hope I'm not getting on your nerves, James."

I surprised myself by spontaneously telling the truth. "No, as a matter of fact, I like it. But how do you do it?"

He chewed and swallowed before answering. "As a matter of fact, James, it's plain old hard work. When I went blind, I spiraled down, big-time. I stared into a huge abyss, and pulled back just in time. And I decided that the bad things in life are just gonna come, and there's nothing you can do about it. And the good things in life, well, you've got to work for them.

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Which is hardly fair, but if that's the way it is, then you either work for the good things, or you wallow in crap until you die."

"Been there, done that," I muttered.

"Hey," Jim added. "You don't play chess, do you?"

"A little."

"Well, we ought to play. As a matter of fact, I should look into forming a chess tournament."

This guy had energy and enthusiasm like I'd never seen before. "I'll wipe up the board with you," I said, trying to match his style.

He chuckled. "We'll see about that. After dinner, in our room: Pawns at twenty paces."

Maybe Rachel was right about having a roommate.

Rachel came up to us at dinner the next night, sounding as cheerful as usual. "Hi, guys, how's it going?"

"Pretty good," I admitted. "How about you?" With all my might, I wished I could come up with something less banal to say to her.

"I can't complain," she said. "I came to tell you about the mall trip next week. The bus leaves at nine, if you're interested."

"Not really," I said automatically.

"What's a mall trip?" Jim asked.

"Something we do once a week," Rachel said. "We just supply a bus to the mall, so if you want to go and get something, we've got transportation arranged."

"What the heck," Jim said. "I'll try anything once."

"Great!" Rachel said. She squeezed my shoulder, which made my heart go kathump-thump, and then strode briskly off.

"Why don't you go on these mall trips?" Jim asked, cutting his meat.

"What's the point?" I asked sullenly. "You buy stuff you don't need, pretending you can't hear people whisper, 'hey, lookit the blind guy.' Who needs it?"

Jim chewed thoughtfully. "Well, James, maybe you're right. But maybe you're overlooking the value of a change of pace, of getting out more, and coming out of your fortress once in awhile."

Jim had a way of talking that made me listen. "I'll think about it," I said.

But we both knew I wouldn't go.

The next week, when he was at the mall, the apartment felt empty. Then I figured it out: I was lonely! And I hadn't felt lonely since Jim had shown up! He had inspired me to be more open with Rachel, and to be friendlier with the other residents.

I needed that. I needed other people. I had never believed that before.

I felt bad about missing the mall trip, now. But I had a better idea. I left the apartment, found my way back down to the social area by the dining room, and listened to the conversations. Sure enough, The Admiral was there. I walked over slowly.

"Excuse me, Admiral?"

"Yes indeed, you have the Admiral. Jim, isn't it?" Spry. Chipper. Are those derogatory words? I didn't know, but they were the words that came to mind when I heard his voice. The guy must have been in his late seventies, but he had more energy than I ever did.

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"That's right," I told him. "I was wondering if you had any more room in your book club. I'm interested in joining."

"Well, that's wonderful! We always have room for one more, and it will be great to get a younger man's perspective on things. We meet once a month, right here, at eight in the evening. Do you have access to books?"

"Oh, sure. Talking books, Braille, all kinds of things. That'll be no problem."

We made arrangements, talked over details, and I left, feeling a little better. A good first step, I decided.

Jim came back late that afternoon while I was listening to the radio. He sat down opposite me, in his easy chair. "James," he said in greeting.

"How was the mall?" I asked, wishing I'd gone.

There was a long pause, then he stirred. "I think there's something you should see."

I laughed without humor. "Interesting choice of words."

"I've called a taxi," Jim continued unflappably. "And I'm taking you back to the mall."

I liked Jim, so I laughed again. "You are, are you?"

Jim answered, deadly serious. "Yes, I am."

"Why?"

"You'll find out."

I guess it was my curiosity, something that had been dead for years, that got me into the cab with him, and we went to the mall. We both broke out our canes, and I followed Jim as he walked unerringly toward whatever it was he wanted me to "see." As we made headway through the crowd that parted before us like the Red Sea, Jim began talking.

"Are you familiar with virtual reality?" he asked.

"Yeah. It's the latest gee-whiz computer gadget," I said. "So what? I don't program games—I program business applications."

"Well, we're here," he said, although that wasn't an answer. He nudged me. "Go ahead. I've already paid."

I walked forward doubtfully, and someone put something in my hands. "This is a virtual reality helmet," the person said, apparently some kind of clerk. "You gotta put it on your head."

I turned to Jim. "You brought me all the way here to play a virtual reality game? How well do you think I'm going to do?"

"Put it on," Jim said. "It's the latest hardware. It connects with your brain."

"It does what?"

"It bypasses your optic nerve and sends the images straight to your brain," Jim said. My jaw dropped and I stood frozen to the spot. He gave me a shove. "Go ahead," he said. "Find out what it's like to see."

I stood rooted, gaping in amazement. "This . . . bypasses . . . the optic nerve? 'Find out what it's like to *see'?*"

"Go ahead," Jim said again.

I stumbled in the direction he was pushing me, trying to comprehend what was going on. "Find out what it's like to see"! I'd wanted to see as long as I could remember! But I'd grown up and I knew—I *knew!*—that

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I never would. I'd almost accepted that fact! And here I was, about to *see!* This was unbelievable! What did I do? How should I prepare? What was going to happen?

The clerk was helping me get the helmet on my head. "Ready?" he asked.

"No—I—um, I mean, I guess so," I stammered.

There was a click as the kid threw a switch.

An enormous wave of input—they must have been images—slapped me in the face! They were right in front of me—they were all around me—they were on top of me! I cried out and tried to duck, but they stayed there, and I crouched in a defensive position while I stared at them. My mouth was hanging wide open, and I simply could not believe the enormity—the total tonnage!—of information being shoveled at me!

I looked around, and realized that I wasn't in the mall. I slowly straightened, and stared.

"What is this—a field or something?" I asked.

"It's one of our most popular programs," the kid said from far away. "Virtual Meadow. Older people find it real relaxing."

I ignored him, and began walking. "This is grass," I thought to myself. I looked up. "That's the Sun. Those are clouds."

A tear trickled down my right cheek.

I looked over to my right. "Those big things. Probably trees." Things I'd read about, things I'd heard about for years, were coming to life before me.

"Flowers." I blinked rapidly against the stinging in my eyes.

Two animals, one smaller than the other with spots on its back, appeared among the trees. "Animals. Must be deer."

"Birds." Tears were streaming down my face and I turned dizzily, around and around.

"I can see!"

I can see.

That was the sky, and that's what they meant when they talked about blue sky. And the trees—that's green. That's what they meant. I always wondered.

I can see! I tried to say it out loud, but I realized that I was sobbing uncontrollably, and tears were streaming down my face, and I could hardly stand. I kept turning around and around, getting dizzier and dizzier, and suddenly I felt someone grab me, and a voice from far away penetrated my worshipful agony.

"James! Are you OK?" It was Jim's voice, filled with concern and urgency, coming from somewhere over the hills. "Talk to me, James!"

"It's so beautiful!" I sobbed. "It hurts so much! Help me, Jim, help me!"

I heard him shouting instructions, far away, and I heard a click, and then the image flickered and disappeared, and I was plunged into the soft, comfortable, horrible nothingness that I had known all my life.

Two sets of hands helped me sit down, and someone took the helmet off my head, and I leaned against a wall and sobbed and sobbed and sobbed. After a long time I felt Jim's hand on my shoulder, and I wondered

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how long he'd been there, and I heard him saying, "I'm sorry, James, I'm so sorry, I never guessed you'd react like that. . . ." Over and over.

Slowly, I pulled myself together and talked to Jim. "Wow," I said, and sniffed.

"Yeah," he said. "I found it pretty profound too, but I had no idea it would hit you so hard. I'm sorry, James."

"Don't apologize," I said soggily. "That was the most memorable experience in my life."

He tugged at my arm. "Come on, let's get you home. You'll be more comfortable there."

I didn't say a word as the cab drove us back to the apartment. He led me up to our rooms, and I collapsed in my chair, still overwhelmed by the experience.

"Talk to me, James," Jim said. "I'm feeling really guilty right now."

"I'm recovering," I said, blowing my nose. "That was amazing!"

"It was that."

"How do people handle that much information at once?" I wondered. "It was overwhelming!"

"Well, if you practice since birth, you get pretty good at it," Jim observed.

"How does the helmet make that connection, anyway?"

"Beats me," Jim said, humor creeping back into his tone. "That's a hardware problem. Why do you ask?"

"I'm just thinking really hard. The potential of that gizmo is starting to sink in."

"Like what?"

"Well, basically, if the virtual reality helmet bypasses the optic nerve so easily, why should I be content with the cyberworld? Why shouldn't I buy my own helmet and a video camera, adapt the camera's output to be compatible with the helmet, and be able to see the real world whenever I want?"

There was an amazed pause, and then an explosive exhale. "Wow! James, that's brilliant! The simplicity of true genius!"

"I don't even think it would be too difficult to rig up," I continued modestly. "After all, the helmet is already doing the hard stuff."

"Well," he said, "I'm very impressed. I think you've got something revolutionary here."

"So do I."

I threw myself into my research, and time seemed to fly by. Suddenly, I had too much to do, and it was very pleasant. I had to catch up on my reading list for the book club, and I was competing in the chess tournament in addition to playing Jim for fun. Jim was better than me, but after some practice I could give him a good game.

Jim and I joined SUDS, and the two of us were composing a song to play on kazoos at our inaugural meeting.

And most of all, there was Rachel. I didn't have to force myself to be cheery around her anymore, and found that I could actually carry on a conversation. We took little walks together, talking comfortably.

Was she just doing her job? Was there more? I didn't know.

Illustration by Ron Chironna

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I devoured technical pieces about virtual reality, and also investigated the outputs of video cameras. I'd owned a talking computer for years, and I accessed the Library of Congress through the Net. The technology used in the helmets was about a year old, so the technical and scientific magazines had plenty of articles on them. I also posted a few requests for information on the Net, and had some very instructive conversations with the people who responded. Eventually, I considered myself an expert.

"What I have to develop is a signal converter," I said enthusiastically to Vera and her horrid family when we met for lunch one day. They sat stunned as I chattered on excitedly about the project. "The video camera uses a memory chip that has a digital output, and I have to develop an algorithm to interface with the virtual reality helmet. I'm looking into the super scaler processors, because nothing else is fast enough to handle the volume of information coming from the camera. I still don't know how the helmet converts the signals into a neural pulse, but it doesn't matter. I just have to get the video signal into the helmet in a form it understands."

Kenny shifted in his seat and sighed deeply.

"That reminds me," Vera said brightly. "Ken is thinking about giving community college another try, and we were wondering if he could borrow some of your more basic software materials. You know, manuals, basic how-to books or articles, that kind of thing."

"Sure," I said expansively. With how my life was improving, I could even be generous with Kenny. "I'll pull some stuff together for you, have it ready early next week. Stop by anytime and pick it up."

"Thanks," Kenny grunted.

"No problem," I said, grinning. "Say, Vera, there's this new Italian restaurant a ways from here that people say is good. What do you say we check it out?" I had met Vera alone a couple of times, and it was amazing how much more I'd enjoyed it.

That evening, after *Jim Lehrer,* I headed down to the retirement center's library to pick up some basic computer books for Kenny. I took a side hall. It was a carryover from my old days when I took it to avoid people, but now I still used it because I was familiar with it. Hardly anyone else ever walked along it, because the only rooms connected to it were the storage areas.

As I passed one of the storage rooms, I heard a faint noise from inside. It sounded like a distressed voice, so I stopped to listen. It came again, and this time I recognized it as Rachel's voice. I got a shock of adrenaline, and opened the door. In the back of the room, I heard a scuffle.

"Rachel?" I called. "Is everything OK?"

"Jim!" Rachel's voice came harsh and desperate. "Help me! Please!"

I hurried into the room. "What's going on?"

A man's voice—one of the guys who moved Jim's stuff—interrupted. "Get lost, blind boy. This doesn't concern you." There was the sound

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of more scuffling.

I moved swiftly toward the sound, heart pounding. "Let her go! Now!" I stopped halfway into the room, unsure what to do.

"Who's gonna make me?" the man sneered. "You??"

"Jim!" Rachel's voice, beseeching. "Please!"

I thought wildly. I couldn't fight someone who could see. I could go get help, but who knew how badly he could hurt Rachel in the meantime? I certainly wasn't going to leave. "Let her go," I said again.

"Fuck off."

I'd have to fight him. He'd mop up the floor with me. He might even kill me. He'd certainly hurt me real bad, but it would get him away from Rachel. It would buy her time to get away, get some help. There wasn't anything else to do.

I swallowed with difficulty, fighting down the fear, and started to move toward him.

There was a movement behind me, and then a voice.

"I'm here, James."

Relief flooded over me in a physical wave. "He's got Rachel," I told Jim.

"Then let's get him," Jim said. "You go to his left, I'll go to his right."

"Got it." I began moving in.

"Back off," the guy warned.

"Remember what the judo instructor said, James," Jim called as he moved to the guy's right. "No killing, remember? Just use those maiming moves."

"You're right," I said, catching onto his bluff. "Just take out his eyes."

"But first," Jim said, pausing, "let's take out the lights!" I heard a click, and the room must have gone dark.

"Stay away from me!" the guy bellowed. "I'm warning you!"

"Listen to the poor bastard," Jim said to me. "In the dark, he's blind!"

"Yeah, but he can't track movement," I said.

There was the sound of a quick scuffle, and then the guy screamed. I charged forward, hearing Jim do the same. Following the guy's cries of pain, we reached him at the same time and found that he was on his knees.

Jim had him by the torso, and twisted the guy's arm behind his back. "Get his head!" he yelled.

I grabbed the guy's neck, and then had an inspiration. I pressed two fingers against the tops of his eyes. "Try anything, and you'll never see the light of day again!" I hissed into his ear.

The guy went limp, moaning in pain.

"I kneed him in the groin," Rachel said, her voice shaking badly. "Hold onto him. I'll go get security."

We listened as she stumbled out of the room, and heard her calling for help as she reached the hall.

"Well, I'll be dipped," Jim observed. "She didn't need us at all."

"We distracted him," I objected. "We gave her the chance she needed."

"You distracted him," Jim corrected. "I was just along for the ride."

And Rachel was OK. I was still shaking with relief. "You've got some darned good timing, you know that?"

"Tell me about it. I could be having a beer and debugging a program right

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now. Instead, I hear about a TV program on virtual reality, go to find you to tell you about it, and end up in a rumble! You're a lot of trouble, you know that?"

"Yeah, but who else will laugh at your jokes?"

Jim laughed, and we waited until the security guys came in and took away our captive.

The police finally arrested the guy, and took Rachel to the station to make a statement. Jim headed off to the library, and I sat in the apartment and tried to calm down. I was still shaky, but exhilarated at the same time. Maybe I should take some judo classes. If I could fit them in my schedule.

Someone knocked at the door. Instead of calling out, I went to answer it. The fight had made me a little bit wary.

"Who is it?" I called at the door.

"Rachel," she sang out.

Delighted, I opened the door. "Hi! How are you feeling?"

"Oh, a little shaky, but otherwise fine. Where's Jim?" she asked.

"Down at the library," I said. "What's up?"

She cleared her throat nervously. "I just wanted to thank you for helping me down in the storeroom."

"I was glad to do it," I said honestly.

"It was really scary," she said seriously. "You can't imagine the relief I felt when I heard your voice."

"It was just lucky Jim came along, too," I said, feeling myself blush with pleasure.

"I saw you coming after that jerk before Jim showed up," she said. "You were very brave." I felt her hand on my arm, and then she kissed my cheek. Without realizing it, I had slipped my arm around her waist.

I froze, not knowing if she would object or not, but unable to let go. This was something I'd wanted for as long as I could remember.

I waited for her to pull away, but she didn't.

"Rachel," I said, my voice trembling, "can I feel your face?"

"What?" she asked uncertainly.

"Feel your face. It's something we blind folks do, to really get to know someone better." I felt my face flaming with emotion as I talked.

"OK," she said, sounding a little unsteady.

I didn't let go of her waist. I used my other hand, and traced how her hair framed her face, and followed the delicate arch of her eyebrows. From the angle of her face, I could tell she was looking up at me. I felt the curve of her nose, and the soft fullness of her cheeks. I traced her mouth, feeling her moist lips slightly open. She stood very still, and I might only have imagined the trembling I felt. I gently brushed the smoothness of her silky neck, and felt where it met her shoulder. One of my fingers stumbled across the pulse in her neck, and felt it pounding at high speed.

"I was right," I said, feeling dizzy. "You're beautiful! I knew you would be."

"I'm glad you think so," she said, her voice shaking.

My hand rested on one side of her chin, and I wondered if I had the nerve to try to kiss her. My blood

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pounded in my head as I hesitated, and then she brought her arms up around my neck and pressed her lips against mine.

I almost staggered backwards in astonishment, and then recovered and returned her open-mouthed kiss. I put both arms around her waist and pulled her to me, and she responded by hugging my neck even tighter. Her lips were soft and firm and electric, and my brain buzzed in disbelief that I was the one receiving such a passionate kiss.

After a long, long time, we stopped and leaned back in each others' arms.

"Wow," she said with a shaky laugh.

"Wow," I agreed. "I've wanted to do that for ages."

"Me too."

The impact of her statement sank in, and with an enormous feeling of joy, I leaned down to kiss her again.

She met me halfway.

After quite awhile, there were footsteps in the hall, and then Jim's voice came.

"Hello? Who's there?"

We broke off guiltily, and I answered. "It's just me and Rachel, Jim." My voice was husky with passion.

"It's fine, Jim," Rachel said breathlessly. "We're just talking." Her face was very close to mine, and we hadn't let each other go.

"Oh?" Jim asked, uncertainly. "Oh!" he added with sudden understanding. Humor and happiness flooded into his voice. "I'll just be downstairs for awhile, to let you kids keep on . . . talking." He walked away chuckling, and then burst into a chorus of "Isn't it Romantic?"

Rachel and I leaned against each other and laughed as quietly as we could. After awhile, I found my hand beneath her chin again, and this time I had the nerve to guide her mouth to mine.

We were supposed to be playing chess that night, but it wasn't much of a game. Jim was creaming me. I sat in a fluffy fog, wafted away on the music of Ravel that Jim had put on the disc player, and relived the evening's events over and over and over.

"James!" Jim's voice cut into my reverie.

"Yeah?"

"I was checking to see if you were still with me."

"I'm here. I suppose I ought to concede the game."

Jim laughed. "Considering I just announced checkmate, maybe you should."

I ruminated a minute. "I didn't know you had a recording of Ravel," I said.

"I usually don't play it," Jim said. "But tonight it seemed appropriate. Congratulations, James."

I felt myself getting warm all over again. "Thanks. I still can't believe it."

"You've been in love with her for ages, haven't you?"

I was startled. "Was it that obvious??"

"Believe it. I was just wondering when you two were going to get together."

I smiled happily. "And my reality helmet is coming right along. When I get the thing patented, I'll be in a position to be able to get more serious

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about our relationship."

"Why wait?"

"Well—I'm blind, Jim. She's not. I have to be able to show that I'm worthy of her."

"Patents don't show that, James."

"I know, but you know what I mean."

"No, I don't. You're selling yourself short. You're a great guy, and she's crazy about you. She's always been crazy about you. There's nothing technological or economic about her feelings toward you. You're selling her short, too."

I chewed on that for a long time. "Well, I don't know. . . . " I trailed off as we heard a knock at the door.

"Who is it?" I called.

"It's Ken," my nephew Kenny's muffled voice said.

"I forgot about him," I said. "Come on in," I called, and then turned to Jim. "It's my nephew—the one I told you about. He's here to pick up some software manuals."

Kenny's footsteps sounded in the hall, and then stopped dead.

"Er—hi, Uncle Jim," he said abruptly. His voice radiated surprise, disapproval, discomfort. Anger, even.

"Hi, Ken. How's it going?"

"Um—who's this?"

"Oh, right. You two haven't met. Ken, this is my roommate, Jim. Jim, this is my nephew, Ken." Jim knew all about Ken, but I was just being polite.

"Hi, Ken," Jim said.

"Yeah." Ken snapped. "Uncle Jim, what are you doing?!"

"Doing about what?"

"This guy's black! You're a white man, living in the same room as a black guy!"

Miraculously, the answer leaped into my mind immediately. I aimed my head in his direction and pretended not to understand. "What's 'black'?" I asked, managing to sound puzzled.

Jim came in right on cue. "What's 'white'?" he added.

Ken made a strangled noise. "Oh, yeah, right, very funny. But I'm not going to sit around here and see my own uncle, living with a monkey!"

It was amazing how easy it turned out to be. "Kenny, you idiot," I said in my strongest voice, "I don't have any idea how you can think you're superior to anyone. You don't have the intelligence God gave gravel. You've accomplished nothing in your life. You have no redeeming personality traits whatsoever." I picked up a can of roach spray and pointed it at him. "You're a good-for-nothing asshole. Now get the hell out of our room, before I spray you like the cockroach you are."

"Fine!" he yelled. "I'll leave you with your darkie roommate and your dog of a nurse, and you'll get what you deserve! And I'm never coming back, either!"

"That's the best news I've heard all day," I said.

Jim spoke up. "'Bye, Henny Penny Kenny."

Kenny made another strangled noise of rage. When he slammed the door, the sound echoed down the hall. Jim and I sat silently for a minute.

"I apologize for my idiot nephew's insults," I said.

"It's not your fault," Jim said. "You

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handled it very well."

I went over to my desk and picked up the virtual helmet and its assorted electronic components. Quite deliberately, I went over to the trash can and dropped all of the stuff into it. It made a loud clatter as it hit dead center.

"What are you up to, James?" Jim asked.

"I'm throwing away my sight experiment," I replied.

"What! You've almost got it working!"

"I know. But my idiot nephew just showed me what those poor sighted bastards get from having vision. Your eyes don't give you more information—they just dazzle you so that you can't see what matters. I don't want any part of that."

Jim chuckled ruefully. "You're a complex man, James. And, I might add, very wise."

I didn't think of it as wise. I just thought of how stupid Kenny was. Imagine, thinking less of a guy like Jim, just because of something I couldn't even sense! What an idiot my nephew was! And what an idiot I'd been, wasting my life wishing I had something so thoroughly useless.

I headed for the door and opened it.

"Where are you going?" Jim asked.

"I'm just going to talk to Rachel," I said. Henny Penny Kenny might have thought she was unattractive, but I *knew* she was beautiful. I stepped outside and started to close the door.

"James!" Jim called.

"Yeah?"

He chuckled again, this time approvingly. "If she says 'yes', I get to be best man."

I laughed. "You already are," I told him, and went to find my beautiful Rachel. ■

"I have a dream that some day, my children will be judged not by the color of their skin, but by the content of their character."

—Martin Luther King, Jr.

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CLICK * >

Testing. Testing. Kirk Luchtenlooper interview. Tape one, side one. OK, Kirk, just talk into the mike.

Thanks. Ahem. A blinding white disc glowed in the blackness, vibrating slightly, just like the Anti-Christ, which I had been watching religiously for over a month through my telescope.

With a click the light went out, and Dr. Smith pulled the opthalmoscope away from my eye. He gave me a clean bill of health. Gamma rays can't be focused by a lens, he explained. And besides, they can't get through the atmosphere. I should have known that.

OK, so on the one hand I was relieved for the sake of my retinas, although on the other hand this eliminated a little supporting evidence I was hoping for. But then, as the UFO crowd says, absence of evidence is not evidence of absence. I could hardly wait to confront Dr. Timothy Turner with my little discovery.

THUNK > > > * < < <

"What's the matter? Why'd you turn off the tape?"

"Kirk, why aren't you sticking to the outline we gave you?"

"Oh, outlines, poutlines! Look, you guys're paying me a lot of money for my story, and this is the way I want it told."

"But we'll just rewrite it all anyway."

"I know, I know. But remember this: you're getting one hell of a scoop thanks to me . . . so . . . OK?"

"Whatever."

CLICK * >

OK!

The observatory, one of many in Arizona, was a little newer, a little bigger, but otherwise nothing special. I worked in security, but you already know all that. Turner wasn't my boss, but he sure thought he was important. He never had time for me whenever I chased him down to discuss my ideas.

One day I caught him in the lobby over at Admin. "Dr. Turner," I called out. He saw me and, I swear, he rolled his eyes. I hate that. I never understood his attitude. You'd think he'd appreciate having someone on the security staff interested in astronomy. But he always treated me like a geek and a pest.

Well, I've been called a geek before, but Turner's not much to look at either. Sort of an old geek. I'll bet we share the Guinness record for longest mean time between dates. Sure he's a high mucky-muck at the observatory, but security is important too. And he must have thought so himself. I'd recently seen his signature on requisitions for more security. Lots more.

"Not right now, Kirk. I'm late for a very important meeting." So it was going to be the White Rabbit routine today. Picture a skinny, myopic rabbit, with a briefcase instead of a pocket watch.

I followed him but he wouldn't slow down or look at me. "I know what the comet is made of."

At that he stopped, his shoulders drooped and he turned slowly and looked at me, this smug little smile on his thin lips. *Jeez,* he can be so conde-

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scending. "Please . . . spare me, Kirk. With every observatory on and over the Earth working on it, I doubt you could add anything. Go home. Let us handle this one."

So I'm all, "Yeah . . . right. . . ." And, without so much as a mother-may-I, he turns and heads down the hall to the elevators.

Well, I wasn't going to let him off the hook so easy this time. I shouted after him, "That's your answer? C.T. go home?"

He walked over to me, grabbed me by the arm and marched me over to the nearest door. Opened it, dragged me inside, slammed the door, slammed his briefcase down on the desk. Not a rabbit anymore. Suddenly a myopic terrier.

"Why did you say that, Kirk? What have you heard?"

That cinched it. I knew I had him—he'd have to give me some respect now. Just as I opened my mouth to answer him, though, he went right on with his next question—you ever know people like that?

"Who has been talking to you?"

"Oh, God!" It dawned on me. "You think this is a security leak. Hey, remember me? I *am* security. No one said anything to me. I figured it out myself."

Noticeable relief. I realized later I should have been offended at that. Turner looked at the blackboard, went over to it and nervously fingered a piece of chalk. "*What* have you figured out?"

"Contra-Terrene Matter . . . Anti-Matter! That's what it's made of, isn't it?"

A groan and the sound of chalk breaking. Gotcha! No offense taken after all, Doc. "I knew you were a science fiction fan, Kirk—the accepted term is mirror matter."

"It'll never catch on. I'm right, though. Right?"

Still really snooty, he said, "It *has* caught on, where it matters. Among professionals. And yes. You're right. How did you figure it out?"

"Simple, Doc. I noticed a lot of computer time lately spent analyzing data from Gamma Ray Observatory III. No papers on the subject being written. Extra security. Stuff . . . you know?"

He smiled a strange smile and looked straight at me for the first time. "No hard evidence, but the right conclusion." He shook his head slowly in . . . what? Disbelief? Envy? Disgust? "You have no idea how we struggled with that damned comet before we thought to acquire and look at that gamma ray data."

"You guys need to lighten up and read some science fiction. A good shot of Williamson or Niven and you would have made the leap sooner . . . easier."

Turner harrumphed. "Maybe. It's a bit lame at this point, I suppose, to claim that bodies of mirror matter just can't exist in our Universe." Absentmindedly he began to doodle on the blackboard. He must have needed to talk, I don't know. But Turner never just talked—he lectured. I watched him, feeling like a kid back at school. I knew I had stumbled into something over my head, but this was too good to miss, so I just held my breath and listened.

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"*Everything* about Comet 2097-I is wrong—we all knew that. Its velocity is too high. It ignited too far out, but burns too dimly, even now, near Saturn." He made an X near a big circle. "We've barely got enough data to plot an orbit, but what we get makes no sense either." He drew more planets. "The fact that it is composed of mirror matter will cause more panic than the *real* danger." He drew a slightly curved line from the X to the third little white circle from the Sun. "It's going to come close. *Damned* close."

That's where I phased out. (Seetee shock?) When I snapped out of it, Turner was sitting at the desk again, looking me in the eye. "As people have come to suspect the exotic composition of the thing, they have agreed to keep quiet, for fear of starting a panic. But as for the comet's trajectory. . . . Can you imagine how hard it's going to be to keep a lid on that?"

"Impossible," I offered, in my best security guard macho voice.

"Exactly." He got up and erased the blackboard thoughtfully, then sat down again. "It's all so frustrating. If only they had launched the Polarimeter Observatory, then we'd have known much sooner. If only we had a human presence on Mars, in the asteroid belt, or beyond, then we'd have had more options, and better data, and sooner. If only the governments of the world had taken such things seriously long ago, then today we might have a defense strategy."

"Defense?"

"They're all in disarray, the idiots. Their easy answers won't work, and there isn't enough time to mobilize anything that will. If only . . . if only. . . "

I nodded and tried to look like I understood perfectly.

"We don't know if the comet will hit or not. There's still time for a good out-gassing to push it out of our path . . . or in. All we can do is hope for the best."

"That's going to be real hard to sell in the 'burbs."

"Impossible, I'd guess. So we have to buy ourselves as much time as possible. Sure, we'll announce it—either when we're ready to, or when we have to. . . ."

So there we were. Doctor Timothy Turner confiding in me, of all people. Pouring his heart out to *me*. But there was never any warmth in his eyes. Just a slight smirk, like he was eliminating a nagging problem. It was spooky. Then he shot me a look.

"Kirk, I'm going to need your silence, and your help."

I started to say something, but he rolled right on as if he didn't even notice.

"I'll put in a request that you be promoted. Day Shift Foreman and Special Agent for Indoctrination and Training."

We talked about all the new security people being hired, and how best to get them with the program. Both of us were trying on our new relationship, like a new shirt—a little scratchy but a decent fit.

Then I almost blew it on the way out. I asked him where the comet was from. I figured if it was anti-matter it had to be coming from outside the Solar System.

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"It's *mirror* matter, and I can't tell you that right now."

"OK. But Doc! Don't you see? It's a CT ship and anti-men are coming to destroy the Earth."

"Kirk!" He looked irritated, but I think we were both relieved to slip back into our old ways for a moment. Like putting on a comfortable old sweater—even if over the scratchy new shirt.

"Well, in any case, Doc, Comet 2097-I?"

"Yes?"

"That name will never catch on either."

So we hired and trained and waited. We did leak control and damage control and eventually made our announcements. Hysteria boiled over and simmered. And we got bomb threats, phone threats, and editorial attacks (the pen *and* the sword, you see) like it was *our* fault, or something.

Anyway, we all just sort of held our breath as the comet approached. Past the orbit of Mars we knew it would miss Earth, so things eased up. But it was still too close for comfort. One-tenth of the way from Earth to the Moon is not far enough. I remember the feeling as the big day approached. Like when I was a kid and rode my bicycle past a dog I didn't know.

Funny thing. Somehow Turner seemed to hold me responsible for the comet's popular name, but I swear, it was not *my* idea. I would have called it "Lucifer's Hammer," but I gotta admit that "The Anti-Christ" has a nice ring, much as the suits around here hated it.

Now for the Michener stuff. . . .

THUNK > > > * < < <

"What now?"

"The 'Michener stuff'?"

"Well, you know, like in the beginning of 'Hawaii.' The stuff in italics. Where the islands come up out of the Pacific. No one was there to see it, but it was so important to the story he put it first. Well . . . I didn't find out this next part till a lot later, but a friend of mine who's had stories printed in fanzines says I need to put this here for the suspense, and hang the point of view problem.

"So here goes . . . well?"

"All right. But we're *not* using Michener's name. OK?"

CLICK * >

Fine.

Dawn came to northeastern Arizona's painted desert on the day of the Anti-Christ's closest approach. The biggest crapshoot since life erupted from lifeless rock was about to happen.

A beam of intense, focused, modulated energy burst from the Anti-Christ. This invisible beam knifed through our atmosphere and struck a couple of acres of desert sand, far from major roads or dwellings. The beam was so focused that it escaped the notice of astronomers and their cameras. The explosive thunderclap, as the air was torn apart, went unheard, for there was no one to hear, or to see the sand react.

The beam coruscated over rocks and loose dirt, and blackened every shrub and cactus in the area. The ground glowed electric blue. After a

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while the beam cut off. The Anti-Christ continued its course past Earth and out of the Solar System, to be polished smooth by the solar wind, and eventually, perhaps, dissolved away to nothing. Our Universe is no place for a chunk of anti-matter.

But hours later the desert sand was still charged from the beam strike. Bolts of electricity played over the ground where it had hit, looking like giant bluish nerve cells, crawling around, trying to sense—to feel—every grain of sand. Soon the sand began to move along these fingers of electricity. A pile began to form at the center of the area. The pile grew hot as the dendrites and axons of electricity continued to drive more of the sand inward.

At a critical point this red hot sand pile came to life (in a sense), and gave birth to "intelligent" microscopic bits of matter, which in turn created strange new molecules and materials, just as a minute molecular seed can create large complex crystals.

Soon a structure took shape and began to dig into the desert sand, and sink out of sight. Had anyone watched that spot of sand through infrared binoculars, it would have appeared to glow with the light of a small sun. Like a newborn kangaroo, the thing had crawled into the pouch of mother Earth to complete its development.

Not bad, eh?

THUNK > > > * < < <

"Just get on with it, Kirk. We haven't got all day."

"OK! OK!"

CLICK * >

Well anyway, about a month later I was sitting at the bar at The Trough, having a beer or two to unwind before going home to my apartment. Things were getting back to normal after the Anti-Christ. Turner must have liked the way I'd been handling security. Personally I think he got me that first promotion just to shut me up. But he got me a second promotion and raise a few weeks later. Even better, he occasionally bought me a beer after work. Can you believe it? We were drinking buddies—sort of. His heart never seemed completely in it, but the beer was good, and we had nice talks. In fact, he was just leaving on this particular night. I watched him hold the door on his way out for this beautiful brunette coming in.

She was *excellent!* I made a mental note and promptly filed her face away under "You Wish." She went to a table behind me somewhere and I turned back to continue my conversation with Joe, the bartender.

He was saying, "So, now that the Anti-Christ is history, it's going to get real lonely around here again."

"I guess so," I said. "But it doesn't sound like you're sorry."

"You're right, kid. We made some nice money, but I'll be glad when things settle down again."

"You and me both. I won't miss all the O.T."

"Or those press goons."

We laughed, remembering those jerks with their quick-draw flip phones—calling first and asking questions later.

The brunette must have been in the back of my mind some—I don't know why else I picked that moment to

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start clowning around.

Joe apparently decided that the huge mirror behind the bar needed cleaning. I watched, and as the two Joes reached out to one another, and as the wadded cleaning cloths got within inches of each other (and closing fast), I shouted out, "No, Joe! Don't do it! You'll blow us all to kingdom come!"

The astronomers, and astronomers' gophers in the place busted up right away. It took Joe a beat to catch on, and then he laughed too—halfheartedly.

Oh, sure, we all knew I was being more silly than clever, after having the Leidenfrost effect rammed down our throats for months. Drip some water on a hot plate and it won't last as long as a drop on a really, really *hot,* hot plate. That second drop will bounce and sputter and skitter around, protected by an insulating layer of steam. I've done it myself as a kid on my grandparents' old wood-burning kitchen range in their cabin. By now we all know that chunks of matter and anti-matter won't blow up in an I'll-be-go-to-hell explosion. They'll just sit there, protected from each other by the plasma from hell, and eat each other away slowly, creating a deadly gamma ray inferno. A lot worse than a quick, clean KABOOM!, if you ask me. But the papers and the tubers (news for couch potatoes) harped on the Leidenfrost effect and somehow convinced people not to worry. Go figure.

I started to think about all the ball lightning reports making the news lately when I noticed the brunette standing at the end of the bar, watching Joe mix her a drink.

The brunette looked at me, a big smile on her face. It hit me what a perfectly exceptional beauty she was. Hit me so hard I almost dropped my drink. Now that we had eye contact it registered that she was even more beautiful than I had thought when she first came in. Supposedly Piaf, or Dietrich, or Madonna—or one of those foxes of old—once said that the first thing a man notices about a woman is whether *she* notices *him.* Boy did that old torch singer know life!

I tried to give the brunette my best macho security guard "Howdy, Ma'am" smile. Thank God I still had my uniform on to complete the picture.

She kept looking at me. They say a picture is worth a thousand words. Well, then a face paints a thousand pictures, and I felt like I might drown in all the things that face was saying to me: "I notice you . . . I'm interested . . . I'm experienced . . . I'm naïve . . . I'm new around here . . . I want to meet someone . . . I'm lonely . . . I'm terribly beautiful." (That last one was probably more me speaking.) Intense. Definitely intense.

Then she got her drink and walked right past me. I had never seen a "come-hither smile" before that moment. Then she was back at her table—the ball in my court.

I looked at my anti-self in the mirror. I was close to hyperventilating. I was not taking this well at all. Oh sure, if I had been a sober, unimpressionable, analytical type (like Turner), I might have been able to describe her as being somehow too perfectly

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gorgeous, her skin newborn smooth, her features too symmetrical, her body athletic and totally feminine.

But it was only me there, practically slobbering into my beer, not noticing much more than my hormones going "YIPPEE!" and trying real hard to ignore another thing her face had said to me: "Not in your league." Enough beers and I'd probably be able to convince myself that *that* was just my imagination too.

So I had the ball and the clock was running.

"Joe, what did she order?"

"Screwdriver."

I stopped Agnes with a fin. "Agnes, bring the brunette behind me another screwdriver in a minute." I gave her the five bucks. "Here. And keep the change."

After a couple of hour-long minutes Agnes poked me. "Get over there and introduce yourself, dummy."

So I walked over, feeling stiff and jerky, like I was twelve again and I knew that the prettiest girl in school was watching me.

"Hi," I said, hoping that my uniform would distract her from my not-so-dashing smile.

"Hi yourself. Thanks for the drink." If dark golden honey could talk, it would have that voice. "My name is Stella. Stella McFarland."

"I'm Kirk Luchtenlooper. But just call me Kirk—obviously." This got a smile (or someone just turned up the lights). I offered her my hand, and then, the *damnedest* thing. She reached out with her *left* hand. For a second we just stood there, stupidly looking at our hands. That Helen-of-Troy serenity deserted her face for an instant. Then she smiled, embarrassed. Her eyes flashed (about 1,000 candlepower's worth), she switched hands and we shook. We laughed. I sat. We talked.

A few beers and a couple of hours later she was at my place. Things were moving along at a pretty good clip. I *think* I was in control. But I gotta tell ya, what with the beer and Stella's . . . and what with *Stella,* I don't think my "control" was worth a hill of beans.

All I remember, before conking out, was thinking that I had actually made love to a virgin, and that things could be worse. Stella had a lot of potential, and the sex was bound to improve.

Of course she was gone when I woke up in the morning.

THUNK > > > * < < <

"Now what?"

"Kirk, have you ever *read* our paper?"

"I try not to. Oh, wait a minute. . . . No way, man. You're not getting any more details about that night from me. This is not your usual sleaze. Stella's a classy lady. I'm doing this interview to help inform the public."

"And to line your own pockets. OK, so, if you don't want us to print the juicy details, what does this part have to do with anything?"

"I'm getting to that!"

"Well, make it quick."

CLICK * >

Hmph!

I felt like a lukewarm corpse that morning. Her being gone was a bummer, sure. But I had to see about surviving my hangover before wor-

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rying about Stella.

I staggered to the bathroom, and promptly threw up in the toilet, which was some relief. I brushed my teeth and exchanged a pathetic look with myself in the medicine cabinet mirror.

What had last night been all about? Why had she asked me so many questions about the observatory? Had she slipped me a Mickey? Had I compromised security? Hell no. I took my job seriously. Did it have anything to do with the Anti-Christ, or was it all just coincidence?

Feeling a little dizzy, I leaned on the mirror with my right hand. It looked as if I was trying to shake hands with myself, only my anti-self was using the wrong hand, just the way Stella had tried to in the bar.

That's when it all clicked. *No, Stella! Don't do it! You'll blow us all to kingdom come!*

Later that day, when I caught up with Turner to discuss Stella, he was *not* impressed. And none too happy about being bothered. Just as snotty and snooty as ever. Like the good old, bad old days.

"Kirk, please. I don't have time for your fantasies."

"But don't you see? Why should a knockout like her even give me the time of day?"

"Maybe she's left-handed."

"C'mon, Doc, even left-handed people shake with their right hand. It was like she thought it *was* her right hand. It's like she's a mirror image."

"She's mirror *matter*." He actually sputtered when he realized what he had just said. "No! She can't be. Surely *you* realize what would have happened if you had touched mirror matter?"

"I know. I *know* she's not mirror matter. She got me hot, but not *that* hot. But maybe anti-aliens have figured out how to convert themselves to our kind of matter—just getting reversed in the process. Like Alice in the looking glass."

We were all a little Alice crazy back then. To hear the tabs and rags tell it, you'd have thought Lewis Carroll wrote those stories just to help us understand parity, mirror matter and the Anti-Christ.

"'Convert,'" Turner repeated distastefully, looking at his watch. "Kirk, I really have to go. If she concerns you so much why not just ask her about it?"

"I can't. She left. No good-bye, no note, no nothing." It hurt to admit that. I was crazy about her, I realized. I guess I was looking for some sympathy, but all I could see in Turner's face was that he was impatient for me to be finished bothering him.

"Maybe she was just using you," he suggested.

"For what?" Then I remembered. "She did ask a lot of questions about the observatory."

That got a rise out of him. "What did you tell her?"

"Hey Doc, remember me. . . ?"

"'I *am* security.' Yeah, sure, Kirk. Forget her. That's my advice. But if she comes back asking about the observatory again, let me know."

In a pathetic last-ditch attempt to sell my idea, I started to remind him

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that he still didn't have all the answers he wanted about the Anti-Christ, when he stepped on the front of my first sentence and finished his own thought, like I wasn't even talking. This does not endear him to me or any of the blue-collar crowd at the observatory.

" . . . And don't bother me with any more cock-and-bull stories just to enlist my help in tracking down this woman. If you can't keep tabs on your own bimbos, it's not my problem."

That really hurt. So I steered clear of Turner for the next week.

One night I was nursing a beer over at The Trough, analyzing the knick-knacks preserved, like Solo in carbonite, under half an inch of clear resin that formed the surface of the bar. It was only my first beer but my mind was already more like a test pattern than a sitcom. I was fantasizing about the fossils trapped in the plastic. Was that scorpion still alive, like a bug in amber, when they poured the resin over it? If we ever run out of scorpions will they come to The Trough and mine DNA from Joe's bar and make new scorpions? Did Joe find that miniature harmonica, or did he buy it for the bar?

Deep stuff like that.

But behind it all I knew I was kicking myself for missing something. I'd stopped treading water and the something deep I was in had quickly gotten over my head. Was I right about Stella, or was I a fool? I'd picked at that question like a scab for days, and I wanted to give up on it—let it heal on its own. I needed this veg time.

"You know your problem, kid?"

I jumped at that. There was Joe, in his white shirt, sleeves rolled up, and his white apron barely covering his gut. He was looking at me with that expression—that disinterested yet fatherly concern look—on his face, as he polished a tumbler with a white dish cloth. The man is such a cliché!

"No, Joe. What's my problem?"

"See? You and I get along great 'cause you never worry about impressing me, or Agnes, or any of the observatory flunkies that hang around here. But with a pretty woman, or Turner, or anyone whose opinion you care about, you disappear and Kirk the jerk shows up."

"You're wrong. I don't care a rat's ass about Turner."

"Oh yes, you do. That goofy streak of yours is as dependable as a Geiger counter. Seems like you spend all your energy saying what you think they want to hear—what you think's gonna impress them. They end up uncomfortable—like you're making them look at their own reflection, distorted, like in some warped fun house mirror."

"Let me guess . . . you're going to tell me to relax. Be myself."

"I'm not saying *nothin'*. Just telling you what I think."

Joe's quick look over my shoulder—those bushy eyebrows doing semaphore duty—made me look up into the big mirror behind the bar. Stella was walking up behind me.

Joe's little speech made it impossible for me to open my mouth. Analysis paralysis.

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She gave me a hug and planted a big wet one on my cheek—like only one day and not a whole week had elapsed since the last one.

"Miss me?" she asked, all innocence and light.

I was actually a little scared of her. Scared of that whispered "Not in your league" I could still see in her face. Scared that it might be true, making our night together a lie, and me only a pawn in her secret plans, *which,* as it turned out, I wasn't equipped to even imagine.

Looking into my beer, I mumbled, "Where've you been?"

She giggled. "Oh, you poor boy! I thought you were awake when I told you where I was going, but you don't remember, do you?"

"So tell me again."

"I had to wrap things up at this land deal outside of Flagstaff. I told you I'd be out of touch. I'm sorry, sweetheart, but I really thought you heard me."

An explanation I could embrace, true or not. Maybe she really did like me. But I was still feeling a little off balance. I don't know why, but I just couldn't bring myself to order us screwdrivers . . . the word just seemed indelicate at that moment.

"Joe, two Harvey Wallbangers."

OK, so I panicked.

And when she asked, after her first sip, what was in the drink, I'm sure I sounded real Continental when I said "Panther Piss" instead of Galliano. She laughed, though, and listened and smiled, and I tried to relax and not work so hard to impress her, and began to fall in love.

The next few days were *amazing.* The only hard part was keeping up the pretense—you know—of not showing I was overwhelmed, out of my depth. Inside of me it felt just like the time the most beautiful girl in high school scared me to death by accepting my invitation to the prom.

We spent a lot of time in Stella's fancy apartment, or riding around in her exotic red sports car, doing anything and everything there was to do in this tiny hick town tacked onto an observatory. Mostly we just drank each other in, like parched desert rats at an oasis. And yes, the sex did improve. Boy, did it.

Stella's appetite for life was incredible. I had trouble keeping up. But it wasn't all exotic and kinky. The simplest things delighted her. She was like a child. I was going through a second childhood with her. Maybe *that's* why I fell so hard for her.

But, you know? There were times, like early in the morning when I'd watch her face as she slept—looking eager for life even then—or after dinner when she'd listen to classical music, totally engrossed, wearing this big blown away smile—and other times when I'd catch her, lost in thought, her face expressionless, except for a look of old pain—times like those when I'd know for sure that I would lose her. I knew her too well, and yet not at all. Any future together had been sacrificed in our head-on collision. A little mystery, a long slow discovery, is like a nice circular orbit, good for millions of years. Our intense, white hot clash was more like a comet's suicidal dive.

I was completely under her spell,

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though, for as long as she chose to cast it. She was my primary, my sol. I had no doubt that someday I'd run out of her life, my tail between my legs, like an outbound comet. But in classic doublethink I was just as sure that the inward plunge would never end. I was positive (hopeful, at least) that the fire of what we had now would never burn out, never change, and that, where love was needed, what we *did* have would somehow make do . . . become enough.

I was a mess.

And not real quick to catch on when she suggested one morning, "Kirk, let's go to that party at the observatory on Saturday. It'll give you a chance to introduce me to your friend, Turner."

And make him turn green with envy, I thought. Oh, yeah, I was really into rubbing Turner's nose into stuff, back then.

So we went. Or I went, wearing Stella on my arm like an ornament (said the dummy about the ventriloquist).

It was a real groaner of a party. Everyone dressed nice-to medium-formal. Someone was going to get some kind of award. The food was good, though. We strolled around, amazed at how many people I *didn't* know. I decided on an elaborate plan: chow down and split.

Turner was absolutely astounded when I strolled up and casually introduced Stella. And she was so cool—said all the right things, "Such a pleasure to meet you. Kirk has told me so much about you. . . . " like that.

I almost lost my own cool, though, when they went to shake hands and Stella put out her left hand instead of her right. But Turner just bowed, took her hand and raised it to his lips. Gallant old fart.

When Stella excused herself to go powder her nose, Turner's eyes followed her, caressing that slinky red dress from the outside just as lovingly as Stella was caressing it from the inside.

"Where the *hell* did you find her, Kirk? She's gorgeous!" So much for sober, unimpressionable, analytical Dr. Turner.

I really didn't have much to say to him. He hovered around, suddenly all buddy-buddy. Stella and I mingled, getting slack-jawed looks whenever I introduced her.

The next day she left on another land deal. The image of her bouncing around in a four wheel drive out in the middle of nowhere, showing some land speculator or filthy rich dude the desert ranch of his dreams—that didn't bother me as much as the memory of her and Turner in polite conversation when I had returned to the party after taking a leak. It was like they were old friends, or as if they were speaking a language no one else could understand.

Jealousy? I asked myself. *Imagination,* I answered.

Three days later supernova SN2097A lit up the late afternoon eastern sky, and changed everything.

God, it was awesome! It was like getting a full Moon's worth of light from a shiny new dime in the sky.

Almost as unbelievable was how quick things went back to the way

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they were during the Anti-Christ days.

Worse.

Somehow security got saddled with answering the panic calls—people worried about radiation and cosmic rays. We'd tell them not to worry about wearing their lead-lined pith helmets for another 5,300 years, and have a nice day.

I called back all the guys we had laid off. Turner being on vacation didn't help. What with dealing with all the press goons clamoring for interviews and instant science, and all the scientists arriving to do real, slow brewed science, me and a lot of other people were busier than left-handed paper hangers. I hardly gave a thought to Stella. Strange, now that I remember it.

When she stormed into the observatory four days later, and demanded to talk to someone in mapping, I took her. After some upset questioning of Shapiro, the bewildered star jockey, she got kind of sad and angry at the same time. Then she charged out, me in tow. I tried to get her to talk.

"Why do you want to know exactly where the supernova is?" Jaw clenched, she walked faster. "Where are you going?" A quick glance my way, like she was being torn in two. "Let's get some coffee and talk," I said.

"No, Kirk. I can't," and, presto, she was in her red sportster, screeched raggedly from the curb and headed north.

It was almost end-of-shift, and my car was parked nearby. Without a thought I took off after her.

When Stella got to the boonies beyond town it occurred to me to turn off my headlights so she wouldn't know I was following her. We used to do that all the time when I was a teen. The desert is hardly ever completely dark. Even on moonless nights, the air being so clean, you can actually drive by starlight. The roads are straight and, by killing the dash lights, your night vision gets pretty good. Of course the light from the supernova made this night's ride easier.

Stella drove on and on. I began to sweat running out of gas when I saw her turn onto a dirt road. The dust she kicked up was lit by her taillights, twin nebulae that looked like a pair of red ghosts following her.

We were about as far from civilization as it's possible to get in the area. About ten miles north of Pinon she turned west. After twenty miles or so of washboard she slowed down, and I closed the gap to about a hundred yards. She rounded some boulders. Her headlights were like twin cones of warmth in a landscape of cold, dark grays. They lit up a strange, unnatural looking rock formation for an instant before she stopped the car, cut the engine, and doused the lights.

I pulled up next to her and jumped out, grabbed her arm as she got out of her car. Scared her good.

"Stella, what the hell's going on?"

She sounded like she'd been crying. "I can't tell you, Kirk. Go home."

"No! How do you know so much about astronomy? What is this place? One of your 'land deals'? Talk to me, Stella!"

Before I knew what she was doing, she about crushed me in a desperate hug, sobbing miserably.

She repeated over and over some-

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thing about not being properly prepared. I couldn't make heads or tails out of it—in fact, the whole damned evening seemed to be going over my head, with about a meter to spare.

She calmed down after a minute, took my arm and said, "Come on."

We walked toward the strange rock pile I had noticed on our arrival. When we got to the rocks they began to glow, faintly green, just enough to show details. It was a huge boulder, trapezoid shaped, with a large, flat, smooth recess in the side facing us. The flat spot had a depression in it, like the silhouette of a big wine barrel on end. In about the middle of *that* there was an image of a hand, glowing green like some spook's amputated, ectoplasmic limb.

Stella put her hand on it. A perfect match (why wasn't I surprised?). As she removed her hand, a line of brighter green, almost white light appeared and traced the edges of the barrel-shaped depression. The whole area inside the line of light began to glow a little. Then I realized that what I was seeing was light from *inside* the boulder coming out through the surface as the recess became invisible.

She stepped into the opening and I suddenly knew that the depression in the rock had not been rock at all, but an opening, like the mouth of a tunnel. So what had made it look like stone at first? A projection? A hologram? *Some security system!* I thought.

I jumped into the opening after her, taking her hand like a child. She seemed to be holding onto me for strength too, which was odd, but felt good.

We were in a long tunnel sloping down to a brightly lit room that I figured had to be 100 feet underground. The tunnel kept its wine barrel shape, but the room at its end was mind boggling.

It wasn't a cube, or any variation of it I could imagine. I couldn't see what its shape really was—couldn't get my mental arms around it, so to speak. It was more like an underground cavern; floor, walls and ceiling curving into one another, studded with all kinds of unnatural shapes. I couldn't recognize any of those things, and so they all looked the same to me, interchangeable; like stalactites and stalagmites. Or crystals. I felt like an ant inside a geode.

It bothered me to look around. I couldn't even guess at sizes or distances. There wasn't anything familiar to use as reference, so my confused brain was thrashing around, unfocusing and refocusing my eyes like a video camera pointed at water.

We were a few steps into this idiotic place when I turned to look at Stella, just to give my own overworked flesh-and-blood auto-focus system a rest. Stella was unaware of me. She had this haunted look, like there was something she badly needed to do and couldn't.

Then I noticed movement behind her. Someone walking toward us, smiling.

Turner!

"Hello, Kirk. Welcome to the 'Fortress of Solitude.' "

That snapped Stella out of her trance. She gave me a kiss on the cheek and said, "Tim will explain. I

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have to talk to my father right now."

Questions were logjammed at the back of my throat. Turner was going to have his hands full when that gridlock broke loose. I watched Stella cross the "floor" of the cavernous underground bubble. When she began to walk up the curve of it, her body eventually sticking out at ninety degrees to the "wall," I found my voice.

"Turner . . . what the hell?"

"They've quantized gravity, Kirk!"

"Oh, that helps a lot."

"You see that stalk with the silver sphere at the end?" He pointed to something that looked like a sailboat mast sticking up toward the center of the chamber. Although distance and the angles made it hard to be sure, the silver globe on top seemed to be exactly at the center of the place. Turner began his lecture as we slowly followed Stella, who had turned a corner and disappeared behind some "stalactites."

"That globe makes gravity, Kirk, but in reverse. It pushes. And it's adjustable. This one is set for one *g* because that's desirable for the human phenotype. And they've finessed it so that it's variable to compensate for Earth's one *g*. It goes from zero on the floor to two *g*'s on the ceiling, canceling out Earth's gravity. The result is Earth normal gravity for the entire interior."

"Seems complicated."

"It is, but the nanotechnology that built this place works naturally in a globular orientation, rather than flat or rectilinear."

Whatever.

We were in among the odd shapes that littered the place. Close up they showed more detail, but were still bizarre looking. Turner didn't say a word about any of them. He kept up his dissertation on gravity control, economy of design, and insights into alien intelligence, complete with footnotes. None of it got through the haze I was in. Until we came to a coffin shaped thing with a woman's figure (Stella's) reversed out of clear, Jell-O-like stuff.

"This is where she was born. Can you imagine it? Complete initial expression of final gene cascades for a mature genotype. That means it went fast—really fast. They are decades ahead of us in *human* genetic engineering." He said this in such an awed tone, he obviously expected me to be impressed too.

But I was clueless. I was still struggling with the most basic parts of what Turner was saying. And I couldn't seem to face it head on. *I've embraced the alien,* I thought. *I've been in alien flesh,* I said to myself, with a stupid grin (which confused my gut reactions all to hell).

Turner was no help, cutting off my questions and answering what he thought I was asking.

"But, how. . . ?"

"It's beautiful. Elegant, really. *Information!* Electromagnetic radiation is exactly the same for matter as it is for mirror matter. So they sent a probe here. The Anti-Christ. It took almost two thousand years to get here. Can you imagine a civilization taking on a project of that duration, and seeing it through? Well, when it finally got here it beamed all this *information* into

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the sand—etching billions of bits of data into the atomic vibration patterns of iron atoms, the way we etch microcircuits into silicon wafers. Only *their* method is holographic. Anyway, they used the information to create this place, and Stella, in normal matter. And there you have it: an alien from a mirror matter world exploring the Universe of regular matter and never any matter/mirror matter contact. Just incredible."

Turner couldn't see my confusion, so I tried again. "But Stella. . . ?"

"There was a lot of controversy eighty some years ago about transmitting the human genome into space. Crazy idea, but the SETI people insisted it would be an olive branch to the stars. Well, seems they were right. Stella's people got every bit of that two year long transmission. They created Stella's DNA matrix, beamed it to their probe which beamed it here. This place acted on that information, growing Stella, like a stereo lithograph in this nutrient gel."

"Why?"

"To make contact with us easier, I imagine. So as not to cause panic. She could blend in with us, become one of us, determine her best course of action, and choose her contacts."

First Contact! The holy grail, in sci-fi and in real life. By now it was already something for the history books, even though no one else knew it yet. I wondered when, precisely, history would say that it had occurred. At The Trough, when Turner held the door open for Stella? In my bed?

I shuddered.

"'Contacts'? That would be you, then, wouldn't it?"

No emotion. Just clinical agreement. "That's right, Kirk."

I got pissed. He could call himself her "contact" all he wanted. But he was really just stealing my girl.

"It's all so easy for you educated guys, isn't it?" But he took that wrong too.

"Not true, Kirk. No. *You* had the insights. Your data was almost nonexistent. A wrong-handed handshake. That was it. And yet you had that flash of intuition. There aren't a lot of people with that power working in the sciences these days. The genius of a Feynman, for example, is like a lightning strike in the dark. People like me devote whole careers to the details, endlessly analyzing small parts of the landscape revealed by such rare bolts from the blue. We need more people like you to stand back and see the picture . . . the big picture."

"And you end up with Stella."

Concern in his voice, now. "Oh no. You've got that all wrong. She has no feelings for me. It's you she loves. I suppose it's first love. For you too?"

I loved an ET. An ET loved me. How weird could things get?

"First love? Uh . . . yeah. I guess." Of course, there *had* been that girl in high school. But that had been all one-sided. I never told her. Never touched her.

Turner and I moved on until what had been our starting point was almost directly overhead. I kept picturing the underground city of the Krell. I needed the voice of Walter Pidgeon to spoon-feed me explanations full of wonder. Turner's half-

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assed lecture was no help.

We got to a part of the "floor" that was "roofed" over to give the illusion of human rooms with ceilings. Turner explained that this section of the "geode" was set up to be more normal for a human, and I could relate to that. I felt a whole lot better with a ceiling over my head. We even passed a normal looking kitchen. Well, I guess Stella had to eat.

We walked to a room where we heard and saw Stella pleading with an old man. The old man was standing in what looked like the beam from a weak spotlight shining straight down on him from the ceiling.

Turner got quiet as we stepped just inside the archway between the hallway and the room. He moved closer to me and began to talk quietly into my ear, explaining things, as only he could. *"He's just a holographic projection. Phenomenal bandwidth, considering their communication link. Stella tells me it's a primitive adaptation of systems on her planet."*

Now that Turner told me, I could see that it was true. There was a slight shimmer to the old fellow, and if I focused my eyes past him I could see little bright spots of reflected light from across the room. But this beat three-deevision all to hell. If this was a primitive version, the full-blown version must be *something*. Daddy McFarland was just about as opaque as the real thing.

Stella and her dad were all intense and earnest. Turner started providing audio subtitles of the conversation for my benefit. The whole thing felt like a hospital visit to a dying man, or a wake.

"Father. . . . " Stella said.

Turner whispered, *"Not really her father. He's their first successful DNA recreation of a human. He was kept on the project as a sort of mission communicator so Stella would have a human face to look at and relate to. But don't be fooled. Her memories came over with the DNA data. There's a whole other life she remembers."*

" . . . You should have told me. . . . "

"The supernova poses a real danger to the home planet. The light reached them years ago, but he didn't tell her. The most dangerous particles will hit in 2,000 years, or so. Matter *particles. They'll polish the home planet's surface just as smooth as Niven's Cannonball."*

Good for Turner. He had actually read some of the books I'd lent him.

"But father, there's still time. There must be another way."

Turner was quiet at this. His face told me he was as baffled as I.

Stella must have sensed that we were standing there. She gestured with a hand behind her back for us to go away. Daddyo didn't miss much, though. "Stella? Is Dr. Turner with you?"

"Yes, Father."

"And someone else?"

"Yes."

"You were not to reveal yourself to others. You were not to become involved with the natives. You know how important that is, don't you?"

"Yes, Father. I—"

"It's OK, Stella," I called out. "We're gonna grab a bite to eat so you two can have some privacy." I waved at

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the old coot. "Hi, Mr. McFarland."

The old guy did a *damned* human double take. I dragged Turner out of there, hoping Stella would smooth things over with "Dad."

Doc and I went to the kitchen. We found some food and I found an appetite I didn't expect to have. Surprise, surprise.

Turner ate without any interest, looking at me like he expected something.

"Well? What do you make of *that,* Mr. Security?"

"It's a real estate deal, Doc."

"No, no. That's just her cover." Then he added, real condescending, "I'm afraid there's more going on here than the sale of some acres of desert and sagebrush."

"That's right. A *lot* more."

He stopped in mid-bite.

"See, Doc? Maybe they *have* got a couple thousand years before they get slammed by the cloud from the supernova—though with the matter/anti . . . eh . . . mirror matter fireworks I suspect they have less time than that—but that's not what's important here. What's important is their window of opportunity to make their getaway. I think Stella is house hunting.

"That's it! To them this is just a little real estate transaction. But Stella committed the biggest no-no in the real estate game. Realtors, like her old man, would rather the buyer and the seller never get together. But now she knows us, and might sympathize with us. We should work that to our advantage."

"Earth?" Duh! Now *he* was a step behind *me*. I liked that for a change.

"Of course, Earth. Figure it. They're losing their lease on the old anti-homestead. And now their feet are being put to the fire. They have the ability to beam their whole population here, like they did Stella. But first they've got to relocate the current tenants (*us*), although, considering how advanced they are, it'll be more like fumigation. Maybe Stella's just doing a termite report."

"No, I can't believe they'd—"

"Oh, of course they'd—say, what *exactly* have you learned so far from Stella? No, wait. Let me guess. Planet size, orbital and rotational data, composition of the atmosphere, and some geography and geopolitical tidbits. Wake up and smell the coffee, Doc! Big picture time. They're kicking us out!"

"No—"

"*Yes!* Stella probably knows it's our death sentence, no matter how her people might candy-coat it. Look at our own history. Any clash between the more and the less advanced has always been murder for the primitives. No exceptions. It's not going to be a real estate *deal* actually—more like the ultimate land grab. I can just hear them justify it to themselves; 'manifest destiny,' or 'the natives are not making good use of the property.' It's just a lousy land ripoff."

"How. . . ?"

"How's easy. They can do it. You should know that better than me. It won't be pretty, but it *will* be efficient."

Turner looked worried, then dubious, then he smiled. "Really, Kirk. This time your imagination has defi-

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nitely run away with you."

"Oh yeah?" I was fed up with this. "Sometimes what's real is *so* bizarre that only imagination will let you see what's going on. You'd better get with *this* program *now,* Doc. *I'll* need *your* help, if we're going to nip this in the bud. They're vulnerable now, but won't be for long."

"How so?" Humoring me, I could hear it.

"Listen, Mr. Know-It-All. This is the ultimate security problem, and remember, I *am* security. Now, chances are this place is just one undefended receiver at the moment. We might be able to knock it out. After all, *we* don't design security systems to guard against ants. So maybe they aren't too worried about us at the moment. If we can disable this place, they'll have to send another probe, and it'll get here thousands of years too late."

"Condemning a billion of my people to a slow, horrible death." I never would have believed that her golden honey voice could carry so much misery.

Stella was standing in the entrance. I don't know how much she had overheard. For a second I felt as if I'd been caught red-handed by a prison guard, planning sabotage and escape. But we're such slaves to our eyes, aren't we? Her beauty was all I could see, all talk of aliens forgotten. All I saw was her red eyes and sad face, and all that pulchritude and innocence. And so that's what she was in my mind. She had been mine, and all the facts in the world (in two worlds) wouldn't erase what I felt for her.

She came over and collapsed into a chair, looking haunted again. "Father talked about resettlement camps and sharing resources, but I think you're right, Kirk. No matter what I do, billions of people will die."

I went around behind her chair and started to massage her neck. "Then don't do anything yet." Tight muscles straining to relax under my fingers. Her silky hair caressing the backs of my hands. I closed my eyes and saw a comet racing back to the Oort cloud. I felt a chill and opened my eyes. I was losing her, I thought. She'd never really been mine. I couldn't ignore that anymore. I'd have to do something soon to prove I was in her league. Time for a home run, or get sent back to the minors. "There's got to be another option, Stella. Doc's a smart guy. He'll think of something."

She shook her head, her hair driving the skin on my hands crazy. "They want me to initiate auto-intelligence. That's an active security system here. Once I do that everything will be out of my hands."

"Then stall them."

"Kirk, I can't let you destroy this place. It's the only hope my people have."

"If we promise not to do anything, will you hold off turning your security system on?"

This was it. Either she'd go with the muscle-bound bullies back home, or she'd throw her lot in with two human geeks. I hoped that her human DNA, along with some recent memories, would save us. And the rest of humanity too, of course.

I stopped massaging, let my hands rest on her shoulders, and held my

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breath. The unreality of it all hit me. I could feel her crying. Her sobs became the only truth for me, the only thing that kept me in the game. The rest of it was still true, I guess, but seemed as unreal as a P. K. Dick novel. For me, the threat to Earth was only a thought experiment—a detective mystery to be solved. Nothing rode on the outcome . . . except Stella's happiness.

She got up and came into my arms for what felt like the last hug you give someone in an airport. "They made me too human. I'm not strong enough. Hold me. Please just hold me." Which I did, for a long, long time, our bodies saying goodbye.

But I didn't want it to be goodbye. I didn't. She was a human. She would never have any kind of life with her own people. The only life she could hope for would be the life she could make here. Why *shouldn't* that life be with me?

Well, she agreed to give Turner and me a chance to come up with another idea to present to her dad. Then she laid a bombshell on us. She told us her people only had thirty years to vacate. In thirty years, she said, the particle and energy flux from the supernova, at the line of sight between Earth and her home world, would reach a point where quantum effects would become noticeable.

Huh? "So?" I asked.

It would make it impossible to transmit the DNA and other data to Earth, she said. Stella's communications link with her father, Turner explained, is a feeble trickle of photons from the home star. Some computer-like equipment here at the complex was able to compensate for atmospheric disturbances and such, but couldn't deal with anything that cuts off the light altogether, or screws with the quantum mumbo jumbo.

"Wait a minute," I said. "That information should have been on its way here years ago." Then it hit me. Stella's conversation with her father had been real time. No delay at all. The old man could have been in the next room. Either I was being hoodwinked big time, or I was missing something important.

So Stella and the good Doctor tried to explain it, and something called the "Quantum Non-Locality Phenomenon." But I gotta tell ya, I don't think either of them understood it all that well. Stella accepted that it worked and shrugged off any explanation, which would be my reaction if I had to explain threedeevision to a cave man, whether I understand it or not (which I don't!).

Turner was one big toothy grin. Spouted theories—quantized gravity black holes, quantum effects undisturbed by gravity wells, light orbiting a singularity (I had him write this stuff down for me later)—and how he figured it all *ought* to work. He didn't sound any more convincing than I would have been with that cave man.

From what they told me, it seems Stella's people had mastered more than terraforming, centuries ago. They had turned their whole anti-matter solar system into a huge cosmic quantum Dixie cup telephone, the string being the light from the anti-star. Stella and her people could quan-

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tum pluck it like a violin string and the person on the other end would hear it instantly.

A seventy-five year long beam of starlight, stored in orbit around an artificial black hole where their Oort cloud used to be—that was the main part. The beam's twin was the string, stretched between them and Earth. If Stella's people modulated the first beam, the receiver in Stella's compound would see the exact same pattern in the second beam as it drifted down through the Arizona skies, and at exactly the same time. Or Stella could modulate the starlight herself before it splashed onto the desert sand, and her people would see her message in their stored beam.

Real-time conversations over any distance. Magic? No, Turner assured me, only sufficiently advanced technology.

Turner raved about Stella's radio, like it was the second coming, or something. I just thought it was super convenient.

Well, not completely convenient, as it turns out. You can't simply call—you can't phone home with it. Both people have to agree ahead of time when to start talking and listening. That time had come again now. Stella left to talk to her father again. She promised to buy us two hours.

After she left, Turner looked at me with a hangdog expression. Out of *his* depths for a change and at terminal overload from all the new developments. A man so smart, just sitting there, helpless. It was sad. I had to get him thinking. "You know? There were some exceptions."

"Exceptions to what, Kirk?"

"To what I said about when first worlders crush primitives."

"Oh?"

"Yeah. Did you know that the American Indians kicked the Europeans out of North America, five hundred years before Columbus? Yeah! Kicked their butts back to Norway, or Iceland, someplace. Of course, those Indians didn't know the big picture when they did that. If they had, they might have made better use of the 500 years."

He nodded, not aroused much. I got up and motioned for Turner to follow. "C'mon, Doc. I don't like the odds with Stella and Dad negotiating without us. You'n me are gonna have a chat with Papa McFarland."

I stormed in, dragging Turner behind me, and crashed their little party.

"Hello again, Mr. McFarland. Say, do you mind if I just call you Mack? Great!"

There was a lot of sputtering all around, but if I let any of them stop me now, I'd be lost in no time.

"Great," I continued. "We've been discussing this little real estate deal of yours. As an interested party—the *Sellers,* to be exact—we have a counteroffer."

The old man was human, all right. Every shocked, insulted, confused, and indignant expression in the catalog raced across his face. Not a poker face, that's for sure. This was going to be easy.

Stella and Doc just looked lost—hopeful, but lost. Stella's eyes were still red. *Hang on, Stella.*

The old fart got a grip and, talking

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to me like I was some lower life-form (which, I was beginning to see, he had a perfect right), he said, "Well, Earthman?"

"The name's Kirk, and if you want to get off that anti-world of yours, you'll listen to me."

"Why? Why should we bother?"

"Well, for one thing, even though you're obviously strong enough to simply take Earth away from us, I'm banking that you've got at least as much conscience as us and would jump at the chance to do this without resorting to genocide. For another thing, Stella hasn't put this place on autopilot yet, and if I were you, I'd worry about what was in that backpack I had with me when I got here."

I turned away from the old man and made some faces of my own at Turner and Stella. They knew I was bluffing and if either gave it away the jig would be very up. I pleaded silently with Stella. Now she could show her true colors. Would she go with the muscle-bound aliens, or the ninety-pound weakling human geeks? Which would it be, Stella?

"Kirk!" she shrieked. "Where did you leave that pack?" Shocked expression, eyes wide. Academy Award stuff. *Thank you, Stella. Thank you!*

I faced Mack. "So, Dad, you can either risk losing this end of your quantum Dixie cup telephone, or do what I ask."

Mack looked right into my eyes. The fact that he was trillions of miles away and that his image was the result of fiddling with photons at the quantum level didn't lessen the impact of that look on me. I felt like I was facing an angry school principal. I think I went a little white. But then he said, in a strangely paternal tone, "So, young man. What is this counteroffer of yours?"

"A fixer-upper on the same block."

Total silence. Then a gasp of understanding from Turner. (There may be hope for him yet.)

Mack, however, seemed ready to send me to detention. But before he could say anything, Turner jumped in—bless his pea pickin' little heart.

"You see, sir, if we're going to evacuate your people to *this* Solar System, we need to quarantine you first. Not for health reasons, but for social reasons. Having such an advanced race of beings here on Earth will create serious problems. It will disrupt and demoralize humanity, and cause alienation and trouble for us both. And Earth is already under strain from our own numbers."

"But *where*, then?"

Maybe Doc thought he knew, but he let me do the honors. I gave Mack my best salesman smile. "Mars!"

Mack's eyebrows knotted in thought; a good sign, I figured.

"Doc tells me your planet is closer to the size of Mars, and so you'll like the gravity better. Now, I understand you people are pretty good at terraforming. So how long would it take you to make over Mars so it will support all of you?"

"Well. . . ," he mumbled. He was thinking about it. If I could get him to answer questions, I was close to having his signature on the dotted line. A year of selling vacuum cleaners had not been wasted after all. "About sixty

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years is the fastest we could manage it." Turner whistled. "But that's too long." Mack continued, "We need to be off this planet in thirty."

No deal, so far, but maybe for once the fine print would help. "Can this underground complex of Stella's here shoot one of those special beams at Mars and build something similar there, the way your probe did here?"

"Yes, but how would that help?"

"Simple. You just do it. Then, once you're satisfied it's operational, we eliminate *this* place, so no interference by nosy humans here on Earth. The complex on Mars starts to work—terraforming, sure—but more importantly it builds huge data storage facilities. Could it do that? And can your DNA patterns and whatever other information be stored for long periods?"

"Yes, it can." A glimmer in his eyes of . . . what . . . amusement?

"OK. Then you beam everybody over to Mars and put them in memory there. As you need the manpower you retrieve some worker drones, boot them up and out to work. When the planet is ready you restore everyone else. Bingo!"

Mack caught on quick. "Five years to build the storage facilities. The data transmission will take twenty years, with a five-year safety margin. Time spent in memory would not present any problems. It could work."

Then he smiled at me. I'll never know if it was a smile of relief or the smile of the spider to the fly.

CLICK! Mack disappeared.

Damn! Just like buying a used car. The salesman-hands-off-to-manager run-around. The old good-cop-bad-cop routine. And I had spelled out my offer to . . . the good one?

"Nice try, Kirk," Turner said. "But why Mars? Why not Venus? Now there's a *real* fixer-upper."

"I know, but some serious shit will hit the fan if *this* prospect doesn't like the offer."

"I guess you're right. But Mars . . . we'll hate to lose that. That's a love affair as old as man. *First* love."

"No, Doc, it's been worship from afar all along, 'cause we never did anything about it. The *Moon* was our first love. At least we touched that. Lost our virginity, but not our hearts, eh? We had our chance with Mars and we turned our back on her. Now we'll have to watch as others have *their* way with the Red Planet."

Turner thought about that. "Maybe a small price to pay to keep Earth for ourselves."

I nodded, as Stella came between us and took one of our hands in each of hers. I asked her if she thought they'd go for my counteroffer. She didn't know. We stood there for a moment, feeling like defendants waiting for the jury to come in.

Then I wandered off by myself to think about what I was doing. What *was* I doing?

Mack reappeared before I had an answer for myself.

"All right. We accept. Stella, initiate security."

"Not so fast! *Not* so fast!" I shouted. "Stella, don't move. First some conditions—and the price."

Turner whispered something about not pushing my luck. Groans from the aliens.

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"You want one of our planets?" I said, "You gotta pay!"

"How much, then?"

"First, the conditions. No space travel for you for one hundred years. You'll be too busy terraforming and restarting your civilization, anyway. Second, no fancy info-beams after the Mars complex is completed. No sneaking out that way."

"The quarantine. Yes, we understand."

"Next, you need to look different when you take over Mars. If you all look too human, we won't know if one of you is among us, spying or whatever. You could look sort of human, but enough different to be obvious. Tweak the genes in the right direction and Mars might be habitable for you a few years sooner."

Mack nodded. I was making sense? I tried to hide my own astonishment.

"Anything else?"

"Only the asking price." Everyone around me held their breath. "In one hundred years your people will help us turn Venus into the garden spot of the Solar System."

Mack thought a moment, then a tiny smile showed he got it. He was no fool, though. "By what authority do you sell Mars to us?"

"What authority would you recognize? I don't think all the diplomats or armies on Earth would impress you folks one quark's worth. Am I right? My authority *might* be a laser pistol in a backpack squirreled away somewhere on the premises—sort of the finger on the jugular vein of your whole escape plan."

He chewed on that for a minute with a look on his face like he wasn't happy with the taste. When I began to imagine him calling my bluff I broke into an instant sweat. Turner must have seen it. He moved closer to Mack and said, "Mr. McFarland. From what I have seen and heard, I have to say that Kirk's authority comes from his proposal itself. It simply is the best solution that doesn't involve your taking Earth by force. We have seen in our own past what damage contact with your culture could do to us. There are consequences of human contact with such a technologically superior race that only a quarantine of millions of miles and scores of years will prevent. With your help, we'll use the time to make ourselves better able to cope with eventual, actual contact. This is, as we say here, a win-win solution."

Mack smiled, as if arguing with children. "Thank you, Doctor, but you'll pardon us if *your* endorsement strikes us as a little biased."

Stella moved up next to Turner and, looking as cool and in control as I've ever seen her, she said "Then I add *my* endorsement, Father."

That sobered Papa a little. He seemed to be listening to voices off camera for a moment. Then he gave us all a genuine, warm smile. "We accept your offer—conditions and all."

Everyone seemed to expect me to say something. They did *not* expect this. "First, Mack, I want you to know something. There is no backpack. Never was. No gun. No nothing. Just this gruesome twosome from Earth."

Turner and Stella gasped. They asked me if I was crazy. They even

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started improvising a backpack for Turner. Mack never lost his smile as we slowly putt-putted back to silence.

"You see, Mack, I don't want you to claim later that you signed under duress. Do you still agree to the deal?"

"Of course. It was never your threat that swayed us. It was the fact that Stella aided you in the fabrication of your bluff. *She* is the real finger on the jugular of our escape. That was her role in all of this. And now she has chosen—so we will abide by her decision."

Mack's eyes focused on Stella. A father's love filled those eyes. "You have done well, my dear. I love you. It's a feeling this human brain permits, as you already know. My one regret is that the new agreement will prevent us from ever meeting. If only I could have embraced you just once."

After a little slobbering by everyone, me included, I figured we had to dot some i's and cross some t's.

"Well, Mack. I'm gonna let you and Doc work out the details." Then under my breath, "Go for it, Doc. And while you're at it, see if you can get them to help us weather that storm that's coming in 5,300 years."

Stella and I went back to the kitchen to talk. She asked me if I knew the magnitude of what I had just done. I did a country boy "Aw Shucks" routine, avoiding her eyes. I told her that if I had thought about the "magnitude" I would have frozen. Sort of like when they tell you not to look down.

"Well, I can't imagine how you were able to keep your cool."

"Simple," I said. "All I cared about—all I thought about—was your happiness." This last part I almost choked on. I turned my face away from her. Couldn't let her see me start to lose it.

She put her hand on my cheek and turned my face back, close to hers. "They made you too human too, didn't they? I think that's why I fell in love with you." She kissed me long and full.

Turner left us alone for quite a while. What *did* they find to talk about? But at least it gave Stella and me time we needed. Ours would definitely be the strangest of relationships. A real space "Oprah."

Finally Turner came in, looking tired but happy to be in his element again, and working hard. He gave us a progress report.

He said he'd help recalibrate things for the Earth/Mars beam. He had a tentative timetable. They expected to be ready in twenty-five days. After a few hours to beam the whole kit and caboodle to Mars, and a few weeks to be sure the new complex was working correctly, they'd have the Arizona complex self-destruct, obliterating the trail for busybody Earthlings.

Turner was all starry-eyed about how they were going to do it. "They'll switch that gravity generator from push to pull," he explained, "set it on a feedback loop and raise it from one *g* to infinity in less than a second. The place will implode. Of course the gravity generator, along with everything else within a 500 yard radius, will turn to plasma. When that happens the generated gravity will also disappear and the shock wave of everything snapping back to one *g*

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will create an explosion like a nuclear bomb, leaving a crater about a mile wide."

Turner warned us that things might get a little sticky in the investigation following the blast. A bit of intrigue and some instant *phony* science ought to keep the scientific community happy with the idea that the blast had been caused by a Johnny-come-lately chip off the old Anti-Christ block.

We laughed, relieved that there was an end in sight. We raised a toast to Alice and the looking glass, and made a solemn vow that we would keep our secrets forever.

Soon after that I said my goodbyes and returned to the welcome reality of my life—tame and gray though it now seemed. But with Stella nothing would ever really be gray again.

And that's my story.

THUNK > > > * < < <

"You didn't go watch the explosion, Kirk?"

"Nah!"

"Well, OK. Thanks for your story. Of course, we're going to have to cut it *way*, way down, you know."

"Oh sure. I know that. But just remember what I said about Stella being a classy dame."

"Sure, sure. Just one question."

"What's that?"

"If the secret of this whole thing is so sacred, why the hell are you telling all now, only two weeks after the explosion?"

"Off the record?"

"Sure. The paper doesn't give a shit. I'm just curious."

"Well, Dr. Turner figured we need people to get used to the idea very gradually. Eventually, though, they'll need to know. We've only got one hundred years before they visit us from Mars. In that time we have to do enough self improvement so we can meet Stella's people almost as equals, or at least as more than insects. After that it's on to Venus, then eventually even the stars could be ours. But we have to make good use of the next century."

"But why break the news in *our* paper? You know we don't project an image of overwhelming credibility?"

"Still off the record?"

"Yeah, sure. What the hell."

"Well, eventually we're all going to have to face the fact that there are aliens on Mars. Too bad this didn't all happen back in the time of Wells or Burroughs, eh?"

"Why is that?"

"'Cause people already believed it back then. But anyway, two things we don't need now, as the truth sinks in, is interference by the Feds, or for the public to panic. The beauty of spilling the beans in *your* paper is that it's the perfect foil for official denials, and for 'official' investigations. After more than a century of zero credibility on the UFO thing, it's super ironic that the only well informed people will be people who read trash."

"But, everything you've told me is true, isn't it? Or isn't it?"

"For the most part. But it'll be unrecognizable by the time your editors get through with it, so who's the liar once your rag hits the streets?"

"I think my boss wouldn't like your attitude."

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"Oh, don't get me wrong. We wouldn't have it any other way. The more that actually, officially qualified people ignore the story, the better."

"Whatever. Well, I gotta get going. Thanks for meeting me here, Kirk. Just one more thing."

"Yes?"

"If the Anti-Christ was really the last chance for survival for your aliens, why didn't they do like NASA used to do at the dawn of space exploration?"

"What did they do?"

"Send up two probes, in case one failed. . . . Say, Kirk, you don't look so good."

"Excuse me. I've got to get back to the observatory now."

"OK. So long. Your check will arrive in two weeks. Hey! Slow down, man! You'll have an accident!" ■

DEDICATION

This story was inspired by, and is dedicated to the memory of Robert Rusk Rigor III, my father-in-law and the most remarkable southpaw I've ever known.

In addition to other forms of nonsense, Aristotle is credited with promoting the syllogism, if not actually inventing it. That's the line of reasoning that goes like this:

Socrates is rational;
Socrates is a man;
Therefore man is rational.

Even at the time, everybody knew perfectly well that Socrates was not rational.

—Will Cuppy

The finest of all human achievements—and the most difficult—is merely being reasonable.

—Jane Bryant Quinn

Some people take more care to hide their wisdom than their folly.

—Jonathan Swift

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TIDBITS

Tidbit: n. A choice morsel of food or gossip. Also *titbit*.

The genealogy of the word is left to the reader as an exercise. This magazine has many readers with young and impressionable minds, regardless of their age.

As you read this column, please also be aware of the fact that I try to be a realist. However, as Dr. Herman Kahn once observed, "These days, a realist is considered to be an optimist."

Scientific and technological progress is occurring so rapidly here at the *fin de siècle* (see the February 1990 column) that many discoveries and new applications seem to be lost in the noise.

Or they are not reported by the technologically challenged people in the news media. Science reporting in the United States is in sorry shape indeed these days.

Or the information doesn't support the political and ideological agendas of these people, most of whom honestly admit they don't understand how television technology gets pictures to go down those little bitty wires. They'd be happier if we all went "back to nature" because they believe they could understand that; they couldn't because the technology they'd need in order to survive is just as complex as what they want to throw out.

Or they want to go back to the "good old days" that in reality were terrible.

Therefore, from time to time, these tidbits should be reported somewhere. What better place than here?

Foremost among these are new developments that have to do with reducing what is termed pollution, a word that means "the contamination of the soil, water, or atmosphere by the discharge of noxious substances." (*American Heritage Dictionary of the English Language*, New York, American Heritage Publishing Company, 1969.) "Noxious" means "injurious or harmful to health or morals" (same reference). Today, however, a tendency has arisen to become hysterical at any pollution, regardless of the amount or consequences, real or imagined. From a technological standpoint, the problem of pollution should include discharging into our surroundings the waste matter and energy we don't want or can't use, that the surroundings cannot absorb, or that the environment requires a relatively long time to assimilate.

However, problems should be viewed as having solutions and presenting opportunities.

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For example:

At Ohio State University, researchers have discovered that by spreading phosphate-bearing pebbles over lead-contaminated soil the phosphate combines with the lead to render this toxic component of old lead-acid batteries or lead-based paint insoluble, immobile . . . and harmless. The gravel is spread like fertilizer in a concentration of two parts phosphorus to one part lead. The resultant compound doesn't leach into ground water, isn't taken up by crops, and isn't released into the human bloodstream if ingested. So much for that environmental worry.

At Los Alamos National Laboratory, Herb Funsten and David McComas have developed a hand-held device that detects minute particles of explosives. The portable hand-held cousin to a hand vac sucks material into a sealed, light-tight chamber where particles in the air are passed through a heated metallic screen. Any particles of an explosive nature ignite. Light detectors sense and report the minute flashes of light. Elegant. Terrorism is dealt yet another blow.

We are using increasing amounts of electrical power. Most of this is generated by burning coal. In a couple of thousand years or so, depending on the "futurologist" you believe, we may run out. Certainly the combustion of coal produces carcinogenic ash that has an infinite half-life in comparison to the carbon-14 also released.

In response to a desire for more environmentally benign electrical power sources, researchers in many locations have now developed fuel cells that use natural gas to produce electricity using a non-combustion process. The hydrogen in natural gas combines with oxygen in the atmosphere in a non-polluting process that produces water and electricity. Some components of natural gas—chemicals added to generate the distinctive odor of natural gas, for example—formerly poisoned the catalysts used in fuel cells. However, proprietary processes have been developed that eliminate catalytic poisoning. The result: clean electric power generation.

Fuel cells were used in the Apollo manned lunar landing spacecraft, and a malfunctioning of the fuel cell system in the Apollo-13 Service Module was one of the causes for that near-disaster. However, 25 years after that mission, fuel cells are being used today in high-rise buildings in Tokyo.

The US Army Soldier Systems Command in Natick, Massachusetts, has dedicated the first of a system of fuel cell power supplies here in the United States. This is a 200 kilowatt facility that can produce enough power for 40 homes. Furthermore, fuel cell systems run cheap. This is good news to anyone whose home (like mine) uses refrigerated air conditioning and who receives a monthly electric utility bill. My home uses natural gas for wintertime heating and for producing hot water all year. I want one of these new fuel cells!

The subject of refrigerated air conditioning also brings up the fact that in the Sun Belt we are beholden to the Great God Freon from the Planet DuPont.

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Research has shown that the presence of chlorofluorcarbons (CFCs)—otherwise known by the more pronounceable tags R-12 and R-22, trade name Freon™—does indeed hasten the destruction of the unstable ozone molecule. This action, it is believed, is caused by the presence of the chlorine atoms in the refrigerant. It is claimed that the presence of CFCs in the Earth's upper atmosphere will destroy the ozone layer that exists at about 75,000 feet above sea level. What has not been convincingly demonstrated is how CFCs get there in the first place because R-12 is 4.4 times heavier than air. (I performed the experiment of filling a toy balloon with R-12 in violation of federal law, then releasing the balloon. It fell immediately to the floor and stayed there.) Ordinary convection doesn't send atmospheric components to 75,000 feet. Even thunderstorms seldom top out at more than 60,000 feet and rarely punch through the thermopause. Some researchers postulate that most of the ozone-destroying chlorine is injected into the upper atmospheric ozone layer by the action of volcanoes. (See this column in the March 1989 issue.) Chlorine is also widely used in municipal water treatment plants, but we don't know if, and how much, and how it gets into the upper atmosphere. If chlorine is indeed the culprit that is "destroying" the Earth's ozone layer, are we faced with the choice of using more sunblock to reduce the exposure of human skin to ultraviolet radiation? Or, instead, fighting disease from untreated water? You pays yer money (literally) and takes yer choice. . . .

Be that as it may, a robust technology exists for the industrial creation of ozone. In the process of bleaching each ton of pulp used to make paper, 15 pounds of ozone are required. The US paper industry produced about 14 million tons of pulp in 1993. Thus, some 210 million pounds of ozone are produced each year for papermaking. The traditional method of generating the required ozone uses electricity obtained by the combustion of coal. (See above.) The Pozone process developed recently at the Lawrence Berkeley National Laboratory uses the reaction between yellow phosphorous and oxygen. It's unlikely that this and other ozone-producing processes will ever be needed to produce enough ozone to "replenish" the Earth's ozone layer. However, it should be an indication that the technology exists to do it if required.

And while we are busily at work creating ozone for industrial use, we are also at work learning how to destroy it in cities. Ozone is a component of urban smog. Most of this is created by our use of automobiles. As Western author Louis l'Amour pointed out, the automobile is mankind's response to overpopulation. Automobiles give us the mobility we want in order to escape from the teeming cities with their high population densities. Automobiles allow us to return to our anthropological roots in the countryside. Now comes the Englehard Corporation, a pioneer in the field of automotive exhaust catalysts, with the announcement that they have developed a proprietary system

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called PremAir. This process coats the coils of an automotive radiator or air conditioning condenser with a catalyst. As air passes through these hot catalyst-treated heat exchangers, ozone is converted to oxygen. As an additional benefit, carbon monoxide is changed into carbon dioxide. This system is scheduled to be put into use in the 1998 autos from Ford Motor Company. It may add $500 to the cost of a vehicle. That, given the price tags these days, is nearly inconsequential. Furthermore, older autos and trucks can be retrofitted with the new catalytic radiators. So can air conditioning systems.

So how much ozone do you want created or destroyed and where?

The late Robert A. Heinlein was a technological optimist. He warped my mind in that direction. And he was right. He was correct in his observation, "If you give a chemist a bottle of alcohol, he can make anything you want."

He also stated that the solution for all the problems of democracy was more democracy. By an extension of this philosophy, it is likely that the solution for all the problems of technology is more technology.

However, some people with political and ideological agendas—mostly concentrated on their root desire to exercise power over people and their lives, or their inability to cope with technology—won't believe this. They will attempt to stifle technological progress. Good luck. I know something about this from a study of history; I've had to study the past in order to write convincing science fiction stories about the future. Historically, all attempts to "control" or otherwise stop technology have failed and led instead to new technological applications that were totally unanticipated. This leads to Stine's Hypothesis: "If you want to encourage the development of science and technology, put tight diplomatic, political, and regulatory controls on the portions you want to accelerate. However, there are easier and faster ways to do it because you must never underestimate the Biological Law of Least Effort."

Argue with me on the internet where my e-mail address is gharry@bix.com. ■

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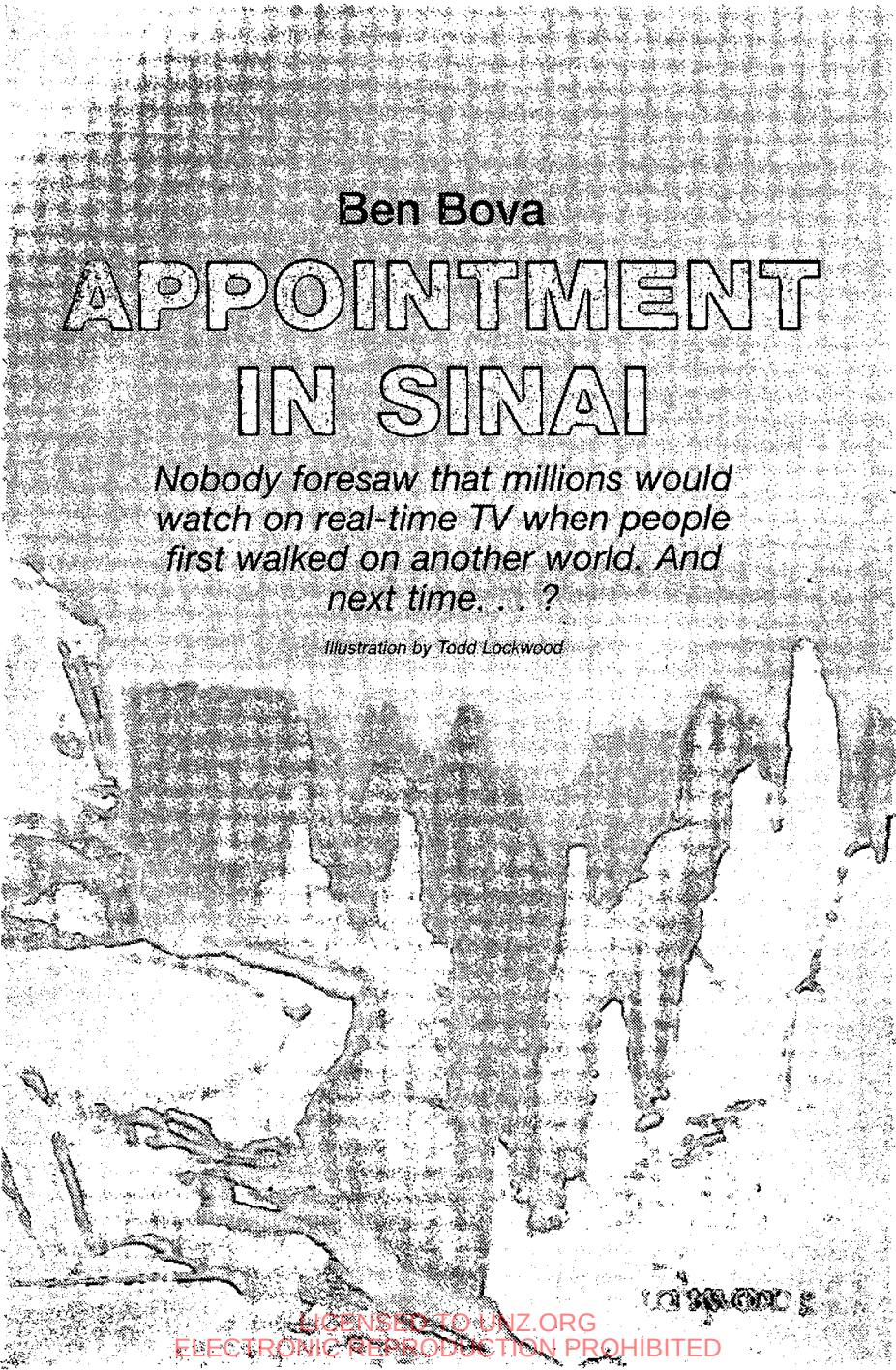
Ben Bova

APPOINTMENT IN SINAI

Nobody foresaw that millions would watch on real-time TV when people first walked on another world. And next time. . . ?

Illustration by Todd Lockwood



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Houston

"No, I am *not* going to plug in," Debbie Kettering said firmly. "I'm much too busy."

Her husband gave her his patented lazy smile. "Come on, Deb, you don't have anything to do that can't wait a half-hour or so."

His smile had always been her undoing. But this time she intended to stand firm. "No!" she insisted. "I won't."

She was not a small woman, but standing in their living room next to Doug made her look tiny. A stranger might think they were the school football hero and the cutest cheerleader on the squad, twenty years afterward. In reality, Doug was a propulsion engineer (a real rocket scientist) and Deborah an astronaut.

An ex-astronaut. Her resignation was on the computer screen in her bedroom office, ready to be e-mailed to her boss at the Johnson Space Center.

"What've you got to do that's so blasted important?" Doug asked, still grinning at her as he headed for the sofa, his favorite Saturday afternoon haunt.

"A mountain of work that's been accumulating for weeks," Debbie answered. "Now's the time to tackle it, while all the others are busy and won't be able to bother me."

His smile faded as he realized how miserable his wife really was. "Come on, Deb. We both know what's eating you."

"I won't plug in, Doug."

"Be a shame to miss it," he insisted.

Suddenly she was close to tears. "Those bastards even rotated me off the shift. They don't *want* me there!"

"But that doesn't mean—"

"No, Doug! They put everybody else in ahead of me. I'm on the bottom of their pecking order. So to hell with them! I won't even watch it on TV. And that's final!"

Los Angeles

"It's all set up, man. All we need's a guy who's good with the 'lectronics. And that's you, Chico."

Luis Mendez shifted unhappily in his desk chair. Up at the front of the room Mr. Ricardo was trying to light up some enthusiasm in the class. Nobody was interested in algebra, though. Except Luis, but he had Jorge leaning over from the next desk, whispering in his ear.

Luis didn't much like Jorge, not since first grade when Jorge used to beat him up at least once a week for his lunch money. The guy was dangerous. Now he was into coke and designer drugs and burglary to support his habit. And he wanted Luis to help him.

"I don't do locks," Luis whispered back, out of the side of his mouth, keeping his eyes on Mr. Ricardo's patient, earnest face.

"It's all 'lectronics, man. You do one kind you can do the other. Don't try to mess with me, Chico."

"We'll get caught. They'll send us to Alcatraz."

Jorge stifled a laugh. "I got a line on a whole friggin' warehouse full of VR sets and you're worryin' about Alcatraz? Even if they sent you there you'd

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be livin' better than here."

Luis grimaced. Life in the 'hood was no picnic, but Alcatraz? More than once Mr. Ricardo had sorrowfully complained, "Maybe you *bufónes* would be better off in Alcatraz. At least there they make you learn."

Yeah, Luis knew. They also fry your brains and turn you into a zombie.

"Hey," Jorge jabbed at Luis's shoulder. "I ain't askin' you, Chico. I'm tellin' you. You're gonna do the locks for me or you're gonna be in the hospital. *Comprendes?*"

Luis understood. Trying to fight against Jorge was useless. He had learned that lesson years ago. Better to do what Jorge wanted than to get a vicious beating.

Washington

Senator Theodore O'Hara fumed quietly as he rolled his powerchair down the long corridor to his office. The trio of aides trotting behind him were puffing too hard to speak; the only sound in the marble-walled corridor was the slight whir of the powerchair's electric motor and the faint throb of the senator's artificial heart pump. And obedient panting.

He leaned on the toggle to make the chair go a bit faster. Two of his aides fell behind but Kaiser, overweight and prematurely balding, broke into a sprint to keep up.

Fat little yes-man, O'Hara thought. Still, Kaiser was uncanny when it came to predicting trends. O'Hara scrupulously followed all the polls, as any politician must if he wants to stay in office. But when the polls said one thing and Kaiser something else, the tubby little butterball was inevitably right.

Chairman Pastorini had recessed the committee session so everybody could plug into the landing. Set aside the important business of the Senate Appropriations Committee, O'Hara grumbled to himself, so we can all see a half-dozen astronauts plant their gold-plated boots on Mars.

What a waste of time, he thought. And money.

It's all Pastorini's doing. He's *using* the landing. Timed the damned committee session to meet just on this particular afternoon. Knew it all along. Thinks I'll cave in because the other idiots on the committee are going to get all stirred up.

I'll cave them in. All of them. This isn't the first manned landing on Mars, he thought grimly. It's the last.

Phoenix

Jerome Zacharias—Zack to everyone who knew him—paced nervously up and down the big room. Part library, part entertainment center, part bar, the room was packed with friends and well-wishers and media reporters who had made the trek to Phoenix to be with him at this historic moment.

They were drinking champagne already, Zack saw. Toasting our success. Speculating on what they'll find on Mars.

But it could all fail, he knew. It could be a disaster. The last systems check before breaking orbit had shown that the lander's damned fuel cells still weren't charged up to full capacity. All right, the backups are

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OK, there's plenty of redundancy, but it just takes one glitch to ruin everything. People have been killed in space and those kids are more than a hundred million miles from home.

If anything happens to them it'll be my fault, Zack knew. They're going to give me the credit if it all works out OK, but it'll be my fault if they crash and burn.

Twenty years he'd sweated and schemed and connived with government leaders, industrial giants, bureaucrats of every stripe. All to get a team of twelve men and women to Mars.

For what? he asked himself, suddenly terrified that he had no real answer. To satisfy my own ego? Is that why? Spend all this money and time, change the lives of thousands of engineers and scientists and technicians and all their support people, just so I can go to my grave saying that I pushed the human race to Mars?

Suppose somebody gets killed? Then a truly wrenching thought hit him. Suppose they don't find anything there that's worth it all? Suppose Mars is just the empty ball of rusty sand and rocks that the unmanned landers have shown us? No life, not even traces of fossils?

A wasted life. That's what I'll have accomplished. Wasted my own life and the lives of all the others. Wasted.

Houston

She was sorting through all the paperwork from her years with the agency. Letters, reports, memos, the works. Funny how we still call it paperwork, Debbie thought as she toiled through her computer files.

Her heart clutched inside her when the official notification came up on her screen. The final selection of the six astronauts who would be the American part of the Mars team. Her name was conspicuously absent.

"You know why," she remembered her boss telling her, as gently as he could. "You're not only married, Deb, you're a mother. We can't send a mother on the mission; it's too long and too dangerous."

"That's prejudice!" Debbie had shrilled. "Prejudice against motherhood."

"Buffalo chips. The mission is dangerous. We're not talking about a weekend camping trip. They're going to Mars, for chrissake! I'm not going to be the one who killed some kid's mother. Not me!"

She had railed and fumed at him for nearly half an hour.

Finally, her boss stopped her with, "Seems to me you ought to be caring more about your kid. Two and a half years is a long time for him to be without his mother—even if nothing goes wrong with the mission."

Suddenly she had nothing left to say. She stomped out of his office before she broke into tears. She didn't want him or anybody else to see her cry.

Pecking at her keyboard, Debbie pulled up the stinging memoranda she had fired off to Washington. She still felt some of the molten white heat that had boiled within her. Then she went through the lawyers' briefs and the official disclaimer from the agency's legal department: they de-

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nied prejudice against women who had children. The agency's choice had been based on "prudent, well-established assessments of risks, performances, and capabilities."

"Jeez, Deb, are you going to take this to the Supreme Court?" Doug had asked in the middle of the legal battle.

"If I have to," she had snapped at him.

Doug merely shook his head. "I wonder how the rest of the crew would feel if the Supreme Court ruled you have to go with them on the mission."

"I don't care!"

"And little Douggie. He'd sure miss his mother. Two-and-a-half years is a long time. He won't even be five yet when the mission takes off."

She had no reply for that. Nothing except blind fury that masked a deeply hidden sense of guilt.

The Supreme Court refused to hear the case, although the news media splashed the story in lurid colors. Astronaut mother denied chance to be part of Mars crew. Space agency accused of anti-mother bias. Women's groups came to Debbie's aid. Other groups attacked her as an unfit mother who put her personal glory ahead of her son's needs.

Her work deteriorated. Sitting in front of her computer screen, scanning through her performance appraisals over the three years since the Mars crew selection, Debbie saw that the agency wasn't going to suffer grievously from her loss. She had gone into a tailspin, she had to admit.

They'll be happy to see me go, she thought. No wonder they don't even want me at mission control during the landing. They're afraid I'll screw up.

"Mommy?"

Douggie's voice startled her. She spun on her little typist's chair and saw her five-year-old standing uncertainly at the bedroom doorway.

"You know you're not allowed to bother me while I'm working, Douggie," she said coldly.

He's the reason I'm stuck here, she raged to herself. If it weren't for him I'd be on Mars right now, this instant, instead of looking at the wreckage of my career.

"I'm sorry, Mommy. Daddy said I should tell you."

"Tell me what?" she said impatiently. The boy was a miniature of his father: same eyes, same sandy hair. He even had that same slow, engaging grin. But now he looked frightened, almost ready to break into tears.

"Daddy says they're just about to land."

"I'm busy," she said. "You watch the landing with Daddy."

The boy seemed to draw up all his courage. "But you said you would watch it with me and 'splain what they're doing for me so I could tell all the kids in school all about it."

A little more gently, Debbie said, "But I'm busy here, honey."

"You promised."

"But—"

"You *promised,* Mommy."

Debbie didn't remember making any promises. She looked into her son's trusting eyes, though, and realized that he wasn't the reason she wasn't picked to go to Mars. It's not his fault, she realized. How could it

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be? Whatever's happened is my responsibility and nobody else's.

Her anger dissolved. She was almost sorry to see it go; it had been a bulwark that had propped her up for the past three years.

With a reluctant sigh she shut down her computer and headed off to the living room, her son's hand clasped in hers.

Los Angeles

"Luis!" Mr. Ricardo called as the teenagers scrambled for the classroom door the instant the bell sounded.

Luis scooped up his books and made his way through the small stampede up to the front of the classroom. He walked slowly, reluctantly. Nobody wanted his friends to think that he liked talking to the teacher.

Mr. Ricardo watched Luis approaching him like a prizefighter watches the guy come out from the other corner. He looked tight around the mouth, like he was expecting trouble. Ricardo was only forty or so, but years of teaching high school had made an old man out of him. His wiry hair was all gray; there were wrinkles around his dark brown eyes.

But when Luis came up to him, the teacher broke into a friendly smile. "Have you made up your mind?" he asked.

Luis had been afraid that Ricardo would put him on the spot. He didn't know what to say.

"I don' know, Mr. R."

"Don't you want to do it?" Ricardo asked, sounding kind of disappointed; hurt, almost. "It's the opportunity of a lifetime."

"Yeah, I know. It'd be cool, but. . . ." Luis couldn't tell him the rest, of course.

Ricardo's demanding eyes shifted from Luis to Jorge, loitering at the classroom door, watching them intently.

"He's going to get into a lot of trouble, you know," the teacher said. He kept his voice low but there was steel in it.

Luis shifted his books, shuffled his feet.

"There are only ten rigs available at the planetarium. I've reserved one. If you don't use it I'll have to let some other student have it."

"Why's it gotta be now?" Luis complained.

"Because they're landing now, *muchacho!* They're landing on Mars today! This afternoon!"

"Yeah. . . ."

"Don't you want to participate in it?"

"Yeah, sure. I'd like to."

"Then let's go. We're wasting time."

Luis shook his head. "I got other things to do, man."

"Like running off with Jorge, eh?"

"Obligations," Luis muttered.

Instead of getting angry, as Luis expected, Ricardo sat on the edge of his desk and spoke earnestly to him.

"Luis, you're a very bright student. You have the brains to make something of yourself. But only if you use the brains God gave you in the right way. Going with Jorge is only going to get you into trouble. You know that, don't you?"

"I guess so."

"Then why don't you come with

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me to the planetarium? It could be the turning point of your whole life."

"Maybe," Luis conceded reluctantly. He knew for certain that if he went to the planetarium, Jorge would be furious. Sooner or later there would be a beating. Jorge had sent more than one kid to the hospital. Everybody knew that sooner or later Jorge was going to kill somebody; it was just a matter of time. He had no self-control once he started beating up on somebody.

"Are you afraid of Jorge?" Ricardo asked.

"No!" Luis said it automatically. It was a lie and they both knew it.

Ricardo smiled benignly. "Then there's no reason for you not to come to the planetarium with me. Is there?"

Luis's shoulders sagged. If I don't go with him he'll know I'm chicken. If I do go with him, Jorge's gonna pound the shit outta me.

Ricardo got to his feet and put one hand on Luis's shoulder. "Come on with me, Luis," he commanded. "There's a much bigger world out there and it's time you started seeing it."

They walked past Jorge, hanging in the hallway just outside the classroom door. Mr. Ricardo went past him as if he wasn't even there. Luis saw the expression on Jorge's face, though, and his knees could barely hold him up long enough to get to Ricardo's ancient Camaro.

Washington

The outer office of Senator O'Hara's walnut-paneled suite had been turned into something of a theater. All the desks had been pushed to one side of the generous room and the central section filled with folding chairs. Almost his entire staff was seated there, facing the big hologram plate that had been set up on the wall across from the windows. On a table to one side of the screen rested a single VR helmet, a set of data gloves, and the gray box of a computer.

The staff had been buzzing with anticipation when the senator pushed in through the hallway door. Instantly, though, all their talk stopped. They went silent, as if somebody had snapped off the audio.

"All excited like a bunch of pissant children," the senator grumbled to himself. "Half of 'em would vote in favor of another Mars mission, the young fools."

O'Hara snorted disdainfully as he wheeled up the central aisle among the chairs. Turning his powerchair smartly to face his staffers, he saw that they were trying to look as blank and uninvolved as possible. Like kids eager to see a forbidden video trying to mask their enthusiasm as long as he was watching them.

"I know what you all think," he said, his voice a grating bullfrog's croak. "Well, I'm going to surprise you."

And with that, he guided his chair to the VR rig and the two technicians, both women, standing by it.

"I'm going to use the rig myself," he announced to his staff. Their shock was visible. Even Kaiser looked surprised, the fat sycophant.

Chuckling, he went on, "This Mars hoopla is the biggest damned boondoggle pulled over on the American

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taxpayer since the days of the Apollo project. But if *anybody* in this room plugs himself into the landing, it's going to be me."

Kaiser looked especially crestfallen. He's the one who won the lottery, Senator O'Hara figured. Thought you'd be the one to plug in, did you? O'Hara chuckled inwardly at the disappointment on his aide's face.

"You all can see what I'm experiencing on the hologram screen," the senator said as the technicians began to help him worm his hands into the data gloves.

An unhappy murmuring filled the room.

"I've always said that this Mars business is hooey. I want to experience it for myself—see what these fancy astronauts and scientists are actually going to *do* up there—so's nobody can say that I haven't given the opposition every possible opportunity to show me their point of view."

One of the technicians slipped the helmet over the senator's head. He stopped her from sliding down the visor long enough to say, "I always give the other side a fair break. Then I wallop 'em!"

The visor came down and for a brief, terrifying moment he was in utter darkness.

Phoenix

For nearly half an hour the oversized TV screen had been split between a newscaster chattering away and an unmoving scene of a rusty-red, rock-strewn landscape on Mars. Zacharias kept pacing back and forth in the back of the big room, while his guests seemed to edge closer and closer to the giant screen.

"We are seeing Mars as it was some eleven minutes ago," the newscaster intoned solemnly, "since the red planet is so distant from Earth that it takes that long for television signals to reach us."

"He's only told us that twenty-six times in the past five minutes," somebody in the crowd muttered.

"Hush! They should be coming down any moment now."

"According to the mission schedule," the newscaster went on, "and taking into account the lag in signal transmission time, we should be seeing the parachute of the landing craft within seconds."

The unmanned landers had been on the ground for days, Zacharias knew, automatically preparing the base camp for the ten astronauts and scientists of the landing team. Over the past half hour the news broadcast had shown the big plastic bubble of the main tent, the four unmanned landers scattered around it, and the relatively clear, level section of the Sinai plain where the crewed landing craft would put down.

If all went well.

No sonic boom, Zack knew. The Martian air's too thin and the lander slows down too high up, anyway. The aerobrake should have deployed by now; the glow from the heat shield should be visible, if only they had programmed the cameras to look for it.

What am I saying? he asked himself, annoyed, nervous. It all happened eleven minutes ago. They're on the ground by now. Or dead.

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"There it is!" the announcer yelped.

The crowd of guests surged forward toward the TV screen. Zacharias was drawn, too, despite himself. He remembered the two launch failures that he had witnessed. Put the project back years; almost killed it. After the second he vowed never to watch a rocket launch again.

Yet now he stared like any gaping tourist at the TV image of a beautiful white parachute against the deep blue Martian sky. He was glad that the meteorologists had been able to learn how to predict the planet-wide dust storms that turned the sky pink for months afterward. They had timed the landing for the calmest possible weather.

The chute grew until he could see the lander beneath it, swaying slightly, like a big ungainly cylinder of polished aluminum.

They all knew that the landing craft would jettison the chute at a preset altitude but they all gasped nonetheless. The lander plummeted downward and Zack's heart constricted beneath his ribs.

Then the landing rockets fired, barely visible in the TV cameras, and the craft slowed. It came down gracefully, with dignity, kicking up a miniature sandstorm of its own as its spraddling legs extended and their circular footpads touched gently the iron rust sands of Mars.

Everyone in the big rec room cheered. All except Zack, who pushed his way to the bar. He felt badly in need of fortification.

Houston

"Nuthin's happ'nin," Douggie complained. "Can't I watch *Surfer Morphs*?"

"Wait a minute," his father said easily. "They're just waiting for the dust to settle and the rocket nozzles to cool down."

Debbie saw the two virtual reality helmets on the coffee table in front of them. Two pairs of gloves, also. Doug and Douggie can use them, she thought. Not me.

"Look!" the child cried. "The door's open!"

That should be me, Debbie thought as she watched the twelve-person team file down the lander's impossibly slim ladder to set their booted feet on the surface of Mars. I should be with them.

Douggie was quickly bored with their pretentious speeches: men and women from nine different nations, each of them pronouncing a statement written by teams of public relations experts and government bureaucrats. Debbie felt bored, too.

But then, "Two of us have virtual reality sensors built into our helmets and gloves," said Philip Daguerre, the astronaut who commanded the ground team.

Debbie had almost had an affair with the handsome French Canadian. Would things have worked out differently if I'd had a fling with him? Probably not. She knew of three other women who had, and all three of them were still as Earthbound as she.

"Once we activate the VR system, those of you on Earth who have the proper equipment will be able to see what we see, feel what we feel, experience what we experience as we

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make our first excursion onto the surface of Mars."

Doug picked up one of the VR helmets.

"Can't I watch *Surfer Morphs*?" their son whined.

Los Angeles

It wasn't until Mr. Ricardo handed him the VR helmet that Luis realized his teacher had sacrificed his own chance to experience the Mars team's first excursion.

There were only ten VR rigs in the whole planetarium theater. The nine others were already taken by adults. Maybe they were college students, Luis thought; they looked young enough to be, even though almost everybody else in the big circular room was his teacher's age or older.

"Don't you want it?" Luis asked Ricardo.

His teacher made a strange smile. "It's for you, Luis. Put it on."

He thinks he's doin' me a big favor, Luis thought. He don' know that Jorge's gonna beat the crap outta me for this. Or maybe he knows an' don' care.

With trembling hands, Luis slipped the helmet over his head, then worked the bristly gloves onto his hands. Ricardo still had that strange, almost sickly smile as he slid the helmet's visor down, shutting out Luis's view.

As he sat there in utter darkness he heard Ricardo's voice, muffled by the helmet, say, "Enjoy yourself, Luis."

Yeah, Luis thought. Might as well enjoy myself. I'm sure gonna pay for this later on.

Washington

Senator O'Hara held his breath. All he could hear from inside the darkness of the helmet was the faint chugging of his heart pump. It was beating fast, for some reason.

He didn't want to seem cowardly in front of his entire staff, but the darkness and the closeness of the visor over his face was stifling him, choking him. He wanted to cry out, to yank the damned helmet off and be done with it.

With the abruptness of an eyeblink he was suddenly looking out at a flat plain of rust red. Rocks and boulders were littered everywhere like toys scattered by an army of thoughtless children. The sky was deep blue, almost black. A soft hushing sound filled his ears, like a distant whisper.

"That's the wind," said a disembodied voice. "It's blowing a stiff ninety knots, according to our instruments, but the air here is so thin that I can't feel it at all."

I'm on Mars! the Senator said to himself. It's almost like actually being there in person.

Phoenix

It's just like we expected it to be, Jerome Zacharias thought. We could have saved a lot of money by just sending automated probes.

"Over that horizon, several hundred kilometers," Valerii Mikoyan was saying in flat midwestern American English, "lies the Tharsis bulge and the giant shield volcanoes, which we will explore by remote-controlled gliders and balloons later in this mission. And in *this* direction. . . ."

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Zack's view shifted across the landscape quickly enough to make him feel a moment of giddiness.

". . . Just over that line of low hills, is the Valles Marineris. We are going to ride the rover there as soon as the vehicle is checked out."

Why don't I feel excited? Zack asked himself. I'm like a kid on Christmas morning, after all the presents have been unwrapped.

Houston

For a moment Debbie was startled when Doug solemnly picked up one of the VR helmets and put it on her, like a high priest crowning a new queen.

She was sitting in the springy little metal jumpseat of the cross-country rover, her hands running along the control board, checking out all its systems. Solar panels OK. Transformers. Backup fuel cells. Sensors on and running. Communications gear in the green.

"OK," said the astronaut driving the buggy. "We are ready to roll." It might as well have been her own voice, Debbie thought.

"Clear for canyon excursion," came the mission controller's voice in her earphones. The mission controller was up in the command spacecraft, hanging high above the Plain of Sinai in a synchronous orbit.

With transmission delays of ten to twenty minutes, mission control of the Mars expedition could not be on Earth; it had to be right there, on the scene.

"Go for sightseeing tour," Debbie acknowledged. "The bus is leaving."

Los Angeles

Luis watched the buggy depart the base area. But only for a moment. He had work to do. He was a geologist, he heard in his earphones, and his job was to take as wide a sampling of rocks as he could and pack them away in one of the return craft.

"First we photograph the field we're going to work in." Luis felt a square object in his left hand, then saw a Polaroid camera. He held it up to the visor of his helmet, sighted and clicked.

"What we're going to be doing is to collect what's called contingency samples," the geologist was saying. "We want to get them aboard a return vehicle right away, the first few hours on the surface, so that if anything happens to force us to make an unscheduled departure, we'll have a decent sampling of surface materials to take back with us."

At first Luis had found it confusing to hear the guy's voice in his head when it looked like he himself was walking around on Mars and picking up the rocks. He could *feel* them in his hands! Feel their heft, the grittiness of their surfaces. It was like the first time he had tried acid; he'd been inside his own head and outside, looking back at himself, both at the same time. That shook him up so much he had never dropped acid again.

But this was kind of different. Fun. He was the frigging geologist. He was there on Mars. He was doing something. Something worthwhile.

Washington

Collecting rocks, Senator O'Hara growled inwardly. We've spent a hun-

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dred billion dollars so some pointy-headed scientists can add to their rock collection. Oh, am I going to crucify them as soon as the committee reconvenes!

Phoenix

Zack felt as if he were jouncing and banging inside the surface rover as it trundled across the Martian landscape. He knew he was sitting in a comfortable rocking chair in his big library/bar/entertainment room. Yet he was looking out at Mars through the windshield of the rover. His hands were on its controls and he could feel every shudder and bounce of the six-wheeled vehicle.

But there's nothing out there that we haven't already seen with the unmanned landers, Zack told himself, with mounting despair. We've even brought back samples, under remote control. What are the humans on this expedition going to be able to accomplish that will be worth the cost of sending them?

Houston

Easy now, Debbie told herself. Don't let yourself get carried away. You're *not* on Mars. You're sitting in your own living room.

Los Angeles

Luis could feel the weight of the rock. It was much lighter than a rock that size would be on Earth. And red, like rust. Holding it in his left hand, he chipped at it with the hammer in his right.

"Just want to check the interior," he heard the geologist say, as if he were saying it himself.

The rock cracked in two. Luis saw a tracery of fine lines honeycombing the rock's insides.

"Huh. Never saw anything like that before." And the geologist/Luis carefully put both halves of the split rock into a container, sealed it, then marked with a pen its location in the Polaroid photograph of the area he had taken when he had started collecting.

This is fun, Luis realized. I wish I could do it for real. Like, be a real astronaut or scientist. But reality was something very different. Jorge was reality. Yeah, Luis said to himself, I could be on Mars myself some day. If Jorge don' kill me first.

Washington

Bored with the rock-sampling task, Senator O'Hara lifted the visor of his VR helmet.

"Get me out of this rig," he told the two startled technicians. Turning to Kaiser, he said, "You can try it if you like. I'm going into my office for a drink."

Phoenix

The ground was rising slightly as the rover rolled along. "Should be at the rim in less than a minute," the driver said.

Zack felt his hand ease back on the throttle slightly. "Don't want to fall over. It's a long way down."

Nothing ahead of them but the dull, rock-strewn ground and the deep blue sky.

Houston

Debbie checked the timeline on the dashboard computer screen and

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slowed the rover even more. "We ought to be just about . . . there!"

The rim of the grandest canyon in the Solar System sliced across her field of view. Craning her neck slightly, she could see the cliffs tumbling away, down and down and down, toward the valley floor miles below.

Phoenix

Mist! The floor of the valley was wreathed in mists that wafted and undulated slowly, rising and falling as Zack watched.

It's the wrong time of the year for mists to form, he knew. We've never seen this before.

As far as the eye could see, for dozens of miles, hundreds of miles, the mist billowed softly, gently along the floor of Valles Marineris. The canyon was so wide that he could not see the opposite wall; it was beyond the horizon. Nothing but gentle, whitish mist. Clouds of mystery. Clouds of excitement.

My gosh, Zack thought, do they extend the whole three-thousand-mile length of the valley?

Los Angeles

Luis roamed across the rust-colored sandy landscape, staring at more rocks than he had ever seen in his whole life. Some the size of pebbles, a few bigger than a man. How'd they get there? Where'd they come from?

And what was over the horizon? The geologist said something about big volcanoes and mountains higher than anything on Earth. Luis thought it'd be great to see them, maybe climb them.

Houston

Debbie stared at the mists billowing along the valley floor. They seemed to be breathing, like something alive. They've got to be water vapor, she thought. Got to be! And where's there's water there could be life. Maybe. Maybe.

We've got to get down onto the valley floor. Got to!

Phoenix

Zack felt like a child, the first time his father had taken him up in a helicopter. The higher they went, the more there was to see. The more he saw, the more eager he was to see more.

Staring out at the mist-shrouded rift valley, he finally realized that this was the difference between human explorers and machines. What's beyond the horizon? What's beneath those mists? He wanted to know, to explore. He *had to* seek the answers.

He realized he was crying, tears of joy and wonder streaming down his cheeks. He was glad that none of the others could see it, inside the VR helmet, but he knew that neither embarrassment nor disapproval mattered in the slightest. What's beyond the horizon? That was the eternal question and the only thing that really counted.

Los Angeles

Yeah, this is great, Luis thought. For these guys. For scientists and astronauts. It's their life. But it's not for me. When I leave here tonight it's back to the 'hood, and Jorge, and all that crap.

Then a powerful surge of new emotion rose within him. Why can't I go

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to Mars for real someday? Mr. Ricardo says I'm smart enough to get a scholarship to college.

Fuck Jorge. Let him do what he wants to me. I'll fight him back. I'll kick the shit outta him if that's what I gotta do to get to Mars. He'll have to kill me to keep me away from this.

Washington

Senator O'Hara was mixing his third martini when Kaiser came in, looking bleary-eyed.

"You been in the VR rig all this time?" O'Hara asked. He knew Kaiser did not drink, so he didn't bother offering his aide anything.

"Mostly," the pudgy little man said. O'Hara could see his aide's bald head was gleaming with perspiration.

"Bad enough we have to waste a hundred billion on this damned nonsense. Is it going to tie up my entire staff for the rest of the day?"

"And then some," Kaiser said, heading for the bar behind the Senator's desk.

O'Hara watched, dumbfounded, as his aide poured himself a stiff belt of whiskey.

He swallowed, coughed, then swallowed again. With tears in his eyes, he went to the leather sofa along the side wall of the office and sat down like a very tired man.

O'Hara stared at him.

Holding the heavy crystal glass in both hands, Kaiser said, "You're going to have to change your stand on this Mars business."

"What?"

"You've got to stop opposing it."

"Are you crazy?"

"No, but you'd be crazy to try to stand against it now," Kaiser said, more firmly than the senator had ever heard him speak before.

"You're drunk."

"Maybe I am. I've been on Mars, Teddy. I've stood on fuckin' *Mars!*"

Kaiser had never used the senator's first name before, let alone called him "Teddy."

"You'd just better watch your tongue," O'Hara growled.

"And you'd better watch your ass," Kaiser snapped. "Do you have any idea of how many people are *experiencing* this Mars landing? Not just watching it, but experiencing it—as if they were there."

O'Hara shrugged. "Twenty million, maybe."

"I made a couple of phone calls before I came in here. Thirty-six million VR sets in the US, and that's not counting laboratories and training simulators. There must be more than thirty million voters on Mars right now."

"Bullcrap."

"Yeah? By tomorrow there won't be a VR rig left in the stores. Everybody's going to want to be on Mars."

O'Hara made a sour face.

"I'll bet that half the voters in dear old Pennsylvania are on Mars right this instant. You try telling them it's all a waste of money."

"But it is!" the senator insisted. "The biggest waste of taxpayer funds since SDI."

"It might be," Kaiser said, somewhat more moderately. "You might be entirely right and everybody else totally wrong. But if you vote that way

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in the committee you'll get your ass whipped in November."

"You told me just the opposite no more'n ten days ago. The polls show—"

"The polls are going to swing around 180 degrees. Guaranteed."

O'Hara glared at his aide.

"Trust me on this, Teddy. I've never let you down before, have I? Vote for continued Mars exploration or go out and find honest work."

Houston

With enormous reluctance, Debbie pulled the helmet off and removed the data gloves. Doug was still in his rig, totally absorbed. He might as well be on Mars for real, Debbie thought.

Shakily, she got up from the living room sofa and went to Douggie's room. Her son was watching three-dimensional cartoons.

"Come with me, young man," she said in her not-to-be-argued-with voice. The boy made a face, but turned off his 3-D set and marched into the living room with his mother.

She helped him into the gloves and helmet.

"Aw, Ma," he whined, "do I hafta?"

"Yes," she whispered to her son. "In a few years, you would never forgive yourself if you didn't."

And she left her son and her husband on Mars and went back to her computer to erase her letter of resignation.

There's a lot of work to be done, she told herself. The exploration of Mars is just beginning.■

I don't know if there is any life on these [Solar] planets or not, human or inhuman. If there are people on them, they probably think they're human, the same as we do.

—Will Cuppy

Statistics are like a bikini. What they reveal is suggestive, but what they conceal is vital.

—Aaron Levenstein

An error is the more dangerous in proportion to the degree of truth it contains.

—Henri F. Amiel

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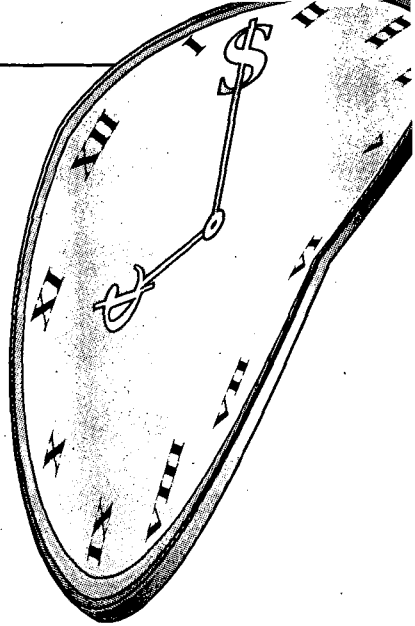

ONLY TIME TRAVELERS NEED APPLY

We, technologically-sophisticated visionaries of the twentieth century, recognize that time travel is no longer a fantasy. Recent theoretical advances by Drs. Kip Thorne and others, as reported in scientific journals, and here in *Analog* by Dr. John Cramer, reveal that this long-held dream of mankind does not contradict any known laws of physics.

As the history of science has taught us, *anything not forbidden will be accomplished.* Therefore, in the infinitude of time yet to come, *time travel will exist!* And, because of the nature of time travel, if it *will* exist, then it *does* exist—indeed, we believe that some of you time travelers are here with us now. Perhaps you came to witness mankind's first nuclear explosions, the first expeditions to other worlds—or to see obscure events important in your own time.

In light of these sober considerations,

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we, Dr. Stanley Schmidt, Editor, *Analog,* and Dr. Arlan Keith Andrews, Sr., Corporate Officer in Muse Technologies, Inc., make a solemn appeal to you visitors from the future who are already among us here in our time, the year 1996 A.D. the Year 27 A.A. (After Apollo):

We, the undersigned, ask that you ensure the beginnings of the chrono-displacement technology that brought you to our time. This should be done immediately, with the simple, non-continuum-disturbing placement of $1,000,000.00 (minimum) in a bank account of your choice, with drawing rights equally to Drs. Schmidt and Andrews. (To the extent possible without violating the rules of non-interference, we also ask that you deposit in that same financial institution a set of data that shows at least one decade of stock prices, horse race and other sporting event winners, as well as election outcomes.)

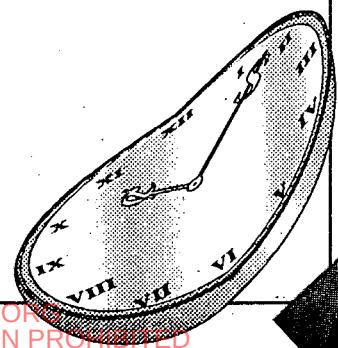
We agree then to invest and utilize these funds and dividends to finance researches into all possible technologies that will one day bring about the means by which you, the chrononauts, were able to return here. The simple knowledge that the technologies already exist will be a significant starting point when the transaction is complete. Our best minds will then know to look for possible solutions. (Hints gratefully accepted. . . .)

Why should you, our visitors from the future, undertake such a step? Because, for all your knowledge of history, this joint effort may have been the initial impetus that made possible the technologies that led to time travel. You simply cannot afford not to cover this possibility by the expenditure of funds that, in your time, have only historical value.

(In fact, once the initial investment has been recouped, we will leave an equivalent amount of cash funds, if necessary, in any storage unit of your choice, so that you may then take the cash in your own time and return it to us. This may already have occurred, and thus we await the return of our funds; please leave instructions.)

We anxiously await notification of the fund transfer, and the auxiliary information that will allow us to begin this tremendous project!

Signed,
Dr. Stanley Schmidt
Dr. Arlan Keith Andrews, Sr.



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Jeffery D. Kooistra

FLUFFY

Once something new gets out into the world, however small, its effects may begin to snowball. . . .

Illustration by Steve Cavallo

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My friends used to throw rocks at cats. I'd do it too, just to be sociable, but I never aimed to hit. I think it's stupid, and besides, I like cats.

But I wanted to have friends.

One day I was down by the old train tracks with Raymond and Billy, and some of the stray cats were going through the garbage, and my friends started throwing rocks at them. But this time there was one little black and white cat with the other ones. Actually, it looked like it was still a kitten—it was real tiny. Only it didn't act like a kitten.

The cat was weird. While Raymond and Billy were throwing their rocks, the other cats scattered. But the little one—I swear on a stack of Bibles—would watch the rocks coming, decide if they were going to hit, then only move if a rock was going to.

"What a dumb cat," Raymond said. "I'm gonna get that sucker!"

He ran after the little cat, but it took off from him. When Raymond stopped running, the cat did, too, and just watched him. Raymond tried again, but the cat did the same thing. Finally Raymond picked up a stick, but by then I'd run over and stopped him.

"Leave that cat alone, Ray," I said. "It's just a kitten."

Raymond is bigger than me. He knocked me down. "Damn you, kitty lover. You pussy! Now the cat got away." My mom won't let me talk like that—I'm only eight. But Raymond's dad talks like that all the time, so Ray does, too. Only not in front of his dad.

"You weren't going to get him anyway, Ray," Billy said. Billy is the fat one of us. "Just leave Joey alone. Besides, I want to go down to the creek."

Raymond wasn't really mad, so he let me back up. But I'd really hurt my butt when he knocked me down. I didn't tell them that. I just said, "You guys go ahead to the creek. My mom said I could only stay out a couple hours. It's probably time I went home anyway."

"Shee-it," Raymond said. Then: "Whatever," and he and Billy left me by the tracks.

I started limping home and that little cat came out of the tall grass and wandered over to me. He bumped his head against my leg and purred. I tried to ignore him. "You're more trouble than you're worth," I said. "I almost got my butt kicked because of you. And Mom says we can't afford to have a cat. Not since Dad left." The cat didn't care what I said and kept trying to be friendly. I finally gave up and let him follow me home.

"Joey, you can't have a cat," Mom said at first. Then she noticed that I was limping, and so I told her how that happened. I had to beg her not to call Raymond's mother and told her Raymond didn't really want to hurt me. That was almost true—he didn't care whether I got hurt or not. Then I picked up the cat and brought it to the gate, limping just a little extra.

I put the cat down outside the fence and said, "Go away, little cat. Mom says I can't keep you. You have to fend for yourself. I know I have my mom and you don't have anybody, but—"

I turned to look at Mom and she was trying to keep me from seeing she

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was crying. She's a softy. Anyway, she said, "OK, Joey. Bring him back. You can keep him. He's such a runt anyway. He probably won't eat much, just live off what we can give him from the table."

"Thanks, Mom. I'm going to name him 'Killer.'"

"Oh no you're not!" Mom said. "That's a terrible name for a cat. You'll call him 'Fluffy.'"

"Fluffy? But he's a *boy* cat!"

"*I* had a tom named 'Fluffy,'" Mom said.

I decided not to push my luck.

Mom wouldn't admit it, but that first week Fluffy was with us she really had fun with him. I still had another week of school to go before summer vacation, so Fluffy was home with Mom all day. She wouldn't let him into the house, but she made sure he had a box with some blankets out in the garage, and she even cut him a cat door through the garage door (the big car door, not the people one).

But once school ended, Fluffy was *my* cat. Even Billy and Raymond learned to like him—though that first day they met him as my cat, Fluffy gave Raymond a bad scratch. It was just an accident, but Raymond had to go home and was afraid he might even need stitches in his cheek.

I thought it was just an accident, but I'm not so sure anymore.

Fluffy was a weird cat.

I made a camp up in the rafters of the garage. I found some old 2x4s down by the tracks, and Mom let me nail them across the rafters up in the garage. A few other trips around through the empty lots and back in the woods, and I found enough other wood to make a nice floor. Billy and me found an old mattress and Mom gave me an old blanket, and then I had a pretty good camp for myself. I even had an old *Playboy* stashed under the mattress. I didn't think Mom was ever going to come up there to look.

Fluffy was with me when I found an old table at a burned-down house, and I wanted to move it up into the camp. It was too heavy for me to haul up the ladder I'd nailed to the wall studs, so I rigged up a pulley and hauled it up with some twine.

Fluffy watched me the whole time I did this, and doggone it if he didn't try to help. Of course, he was so little he couldn't do much. But after I had the table in place, I hooked up a little can with some rocks in it so it was a lot lighter than Fluffy just to see what he would do. He jumped up and grabbed the twine and pulled it down, then ran along the floor until he'd pulled the can to the top. Then he just let go and the can fell down. He didn't do it again.

Fluffy used to join me in the camp all the time. He didn't need to use the ladder though—he'd just jump up on the old stove we had out in the garage, then to a shelf, then up to the rafters. He could come and go as he pleased, and he usually would sleep up there instead of in his box on the floor.

One day Fluffy moved his food dish up there.

I didn't know how he managed that. I'd just climbed up to the camp and there he was with it. But I was

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sure Mom wouldn't have done it for him. I put the dish back on the floor and went outside to watch through the window to see if Fluffy would put it up there again.

Fluffy came down from the camp and pushed the dish back across the floor to under where the pulley was. The pulley still had the twine through it, and Fluffy went back up to the camp and pulled the end loose and dropped it to the floor. He put the hook on the end under the lip of his dish, then he went back up again and jumped down on the other end of the twine, and up went the dish! He twisted the end of the twine into the spokes of my bike to hold it. Another trip up and he had the dish off the hook and in the camp again, then he put the pulley back the way he'd found it.

I decided I'd better not mention this to Mom.

I said earlier there was a stove in the garage. It was still hooked up to gas and one burner worked and sometimes I'd turn it on and cook stuff on it. Mainly I boiled hot dogs.

One day I woke up late at night and I looked out the window and I thought I saw a light in the garage. I didn't want to scare Mom so I went to look myself. I slowly opened the garage door and looked in. There was a pot on the stove, the one I used for my hot dogs, and the burner was on under it. I went to look and saw there was a mouse in the water. The water was boiling already.

I never did catch Fluffy at it, but he'd watched me make hot dogs often enough, and I used to feed him some. I had a bad habit of leaving the used water in the pot until the next time I made hot dogs, so after that I always made sure the pot was emptied and I never left it on the stove anymore.

I never told Mom about the mouse.

It was near the end of June when Fluffy first met Dad.

Mom and I did all right as long as Dad stayed away and sent the support checks on time. But that didn't always happen. There was a time during the spring when I didn't see him for quite awhile. Mom said he'd checked into the hospital for some kind of treatment, and maybe when he got out he wouldn't be like he was anymore.

I would have liked that, but it didn't happen.

Dad's old pickup drove up that morning and Mom said, "Say hello to your father, Joey, and then I want you to go up in your camp and wait for me to come get you. Your Dad and I have some stuff to talk about."

Dad came in without knocking, carrying a six-pack, and tried to give me a hug. "Joey, boy!" he said. "How's my little man, hey?"

"I'm not your little man," I said.

"Sure you are, son. Sure you are," he said, but he wasn't even looking at me then, just at Mom with that *look* in his eyes. I could smell he'd already been drinking that morning. Right now he was in a good mood, but after a few more beers I wouldn't want to be anywhere close.

I went out to the camp and Fluffy and I just waited for Mom. Fluffy took a nap and I was bored. After a while I

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climbed down and looked out the window of the garage. I could see into Mom's bedroom from there, and she and Dad were in there and he was on top of her.

The first time I ever saw that, I thought Dad was beating Mom up, but she never was trying to get away. Usually when this happened, Dad would leave happy and Mom would be sad, but we'd have money to go buy groceries that day, and Mom would always get me extra stuff, like potato chips and ice cream, and we'd order out for pizza that night.

Fluffy came down and joined me, and I petted him while I was watching. A few minutes later Mom and Dad were done and Dad came outside.

"Come and say good-bye to your daddy, boy!" he called. He could see me through the garage window so I couldn't pretend to be gone, so I came out. I could tell he'd had a few more beers, so I didn't want to do anything to make him mad. But while I was walking toward him, Fluffy flew out of the garage and ran between Dad's legs, and Dad tripped over him.

"Damn cat!" Dad yelled, jumping up. "Stupid little bastard!" He took a step toward Fluffy and kicked him a good ten feet. Fluffy landed and rolled then was up hissing and spitting, and glaring at Dad like he wanted to kill him. Dad saw that and said, "So you want more, huh?"

He started toward Fluffy again but I ran in between them. "No, Dad! Please don't!"

"Get out of my way, boy!"

"No."

Dad slapped me with the back of his hand and I fell down; Mom came out screaming at Dad about calling the cops and Dad laughed and got in his truck and drove off.

Later, I found Fluffy up in the camp. He wasn't sleeping but he didn't want me messing with him, either. He just laid there staring at nothing I could see, like people sometimes do when they're thinking real hard.

We had pizza that night, and Mom let me stay up late, too.

A few weeks later another problem came up.

Fluffy was sleeping and I had to go over to the Stop and Go to get some milk for Mom. When I walked over there I noticed a sign tacked up next to the door. I saw it from far away and somehow I knew it was going to be bad news for me, even though I couldn't read it from there.

I got close and read it. I was right.

BEWARE OF CATS.
If you find any cats that
are the size of kittens
but don't act like kittens,
and never seem to grow
any bigger, and seem a lot
smarter than a cat should
be, call JEFF at 555-7263
right away. These cats are
the result of a failed biological
experiment and can be
VERY DANGEROUS.

The sign was written by hand with a black magic marker, except for the big words which were written in red. I knew Fluffy was one of those cats. But I couldn't see Fluffy ever doing any-

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thing that was dangerous to me or anyone else. Sure, he did some weird stuff for a cat, but mostly he just liked to lay around and be petted and sleep and eat.

I tore the sign down and threw it in the dumpster in back.

The next week Dad came to visit again. This time I stayed up in my camp the whole time. I didn't want a repeat of last time. Fluffy was sleeping next to me and I was looking at the pictures in my *Playboy* when I heard Dad's voice outside the garage.

Fluffy heard him too and sat bolt upright and went to look over the edge to see if Dad was there.

"C'mere, boy," Dad said. "Yer daddy's leavin'—" and the rest was kind of a slur. Dad had been extra drunk this time even before he came over. He opened the garage door.

I pulled Fluffy back from the edge, but he turned and scratched me and I had to let go. He jumped out of the camp and across a couple rafters and sat there staring at Dad.

Dad didn't even see him. "Where the hell are you, boy! Little bastard! Come see yer Dad. You up in that goddamn camp again?" he hollered. I held back but then he started to climb up the ladder.

I pretended I was just waking up. "I'm here, Dad. I was sleeping."

It was too late for that.

"Bullshit! Don't lie to your old man. Come down here!"

I climbed down the ladder. Dad already had his belt off. "Bend o'er ya little shit. Teach ya to lie to yer father!" and then he let me have it.

The first one hurt the most. After that I was able to get on the ground and curl up and Dad didn't whip me unless he was real drunk so half the time he'd miss when I was lying down. He got tired fast, too.

Mom finally busted in but Dad was done by then. There was a lot of screaming and yelling and threats to call the cops, and Dad finally left. Mom was crying and said she was sorry and that she didn't hear because she was in the bathroom trying to wash Dad's stink off, and I let myself cry a little bit to make her feel like she was doing me some good by hugging me so hard I could hardly breathe.

As we were leaving the garage I looked up and saw Fluffy. He'd watched the whole thing.

It was a pretty good summer as long as Dad wasn't around. July was a lot of fun, what with me and Raymond and Billy always hiking through the woods and exploring the hills out where the train tracks disappeared around the bend. Fluffy would come with us, and so would Billy's dog. You'd think a dog and cat would fight it out, but Fluffy and Blacky didn't. Blacky liked Fluffy. He'd always let Fluffy have the first drink when we'd come to a stream. Always.

I always brought along a little bottle with gasoline in it on our hikes. We'd use it to help light fires when we were far enough away not to get caught by grown ups.

We'd roast marshmallows. Fluffy loved marshmallows and seemed to know all about roasting them right from the start. But he'd only eat them

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if they caught on fire first so the outside was burned black.

Near the end of July that guy had been back to the Stop and Go because there was another sign up warning about cats. I took that one down, too.

The next morning that Dad came I went off on a hike early that day so I wouldn't have to see him.

August was the best month for me that whole summer. Mr. Farmer (that was Billy's Dad) said he'd take me and Billy camping up in the state forest. I spent a lot of time over at Billy's that week before we left, packing and planning for the trip. Ray was kind of mad at us because his Dad didn't like Billy's Dad so he couldn't go with us.

Sometimes it's better not to have a Dad. A real Dad, that is.

I've always liked Mr. Farmer. He's a great big guy with a brown beard and he laughs at everything. And Billy says he only goes through about one six-pack a *summer*.

Billy's family has a pickup with a camper on the back and we got to ride inside the camper with Blacky and Fluffy. Mr. Farmer kept the window in the rear of the cab open and he had us pass him a bottle of pop or cookies now and then from the supplies we had back there with us.

We'd gone over a hundred miles that way by the time we finally got back deep into the woods at the end of a two track, and Mr. Farmer said, "We're there, boys!" It was sunny but it had rained the night before and the ground and the wood around us was damp.

Mr. Farmer sent us out to gather firewood anyway, and said that once we got a little fire going, we could dry enough wood to get a real blaze burning later.

Mr. Farmer was still gathering wood when Billy and I came back with our first loads.

"Boy, this stuff really is wet," Billy said. "I don't know if we'll ever get a fire going."

"Wouldn't it be nice if we had one going before your Dad gets back?" I said. "Let's give it a try." I wanted Mr. Farmer to like me. I thought getting the fire going would impress him.

We tried for a few minutes, laying the sticks out, and lighting the newspaper wadded up under the sticks. But once the paper was done burning the wood would just go out.

"I have my bottle of gas," I finally said. I hadn't told Billy I'd packed it.

"I don't think my Dad would like us to use it," Billy said.

But then he looked around and Mr. Farmer wasn't anywhere around, so he said, "OK. Give it a try."

I got the bottle from my pack and went back to the fire where a little flame was still flickering under a couple of the sticks. Blacky and Fluffy returned from running around in the woods just in time to watch me open the bottle and pour some on the fire.

I poured too much. FWOOSH!, up went a ball of flame.

Blacky got scared and ran away barking. Fluffy just stared at the ball of fire and then at the smoke and the flames of a pretty good looking fire. He was fascinated by it. Billy fed in more wood and we had a nice blaze

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going by the time Mr. Farmer came back.

"What was Blacky barking about?" he asked.

"I don't know," Billy said.

"Me neither," I said.

"Nice fire you boys got going there," Mr. Farmer said. "I'm surprised you got one going that well so fast with that wet wood." I knew he could smell the gasoline because I still could. I wondered if he'd be mad and take us home. But he didn't say any more about it.

That night we roasted hot dogs and talked about what we wanted to be when we grew up. Even Mr. Farmer.

"I want to be a fireman," Billy said. "I know a lot of kids say that, but I really want to be one. I want to learn what hose to use and about how fires start in houses and all that stuff."

I looked up at the sky and the stars were so bright and beautiful that night. It's never like that in the city. Not even on the edge of the city where I live. "I want to be an astronaut," I said. I'd never told anyone else that. Not Mom, and certainly not Dad. But the thought of joining the astronauts in the space station up there, and maybe someday going to Mars and seeing if there really were alien ruins up there—Wow, that would be better even than walking to wherever it is the train tracks end.

"I'm with you, Joey," Mr. Farmer said. "I'm only thirty-two. I know that sounds old to you boys, but I'll still be alive I hope when ordinary people will be able to live on the Moon and work there."

That night in my sleeping bag I pulled it way over my head. I didn't want Billy to see I was sorta crying. I wanted a Dad like his so bad.

We camped for two days. When I got home, I knew something was wrong.

Dad would be coming for his usual visit the next day, I knew that. But Mom was used to that so I didn't think that could be it. But she was looking at Fluffy kind of weird. And I don't know how I knew this, but Fluffy noticed it, too.

That same night Mom started asking me questions about Fluffy. "Joey, have you ever seen Fluffy do anything really strange?"

"I don't know," I said. "I saw him eat a grasshopper once."

"Not like that," Mom said. "All cats do that. I mean, have you ever seen him do anything that made you think he was really smart?"

"He learned how to climb up to my camp all by himself," I answered. "I think he's a smart cat." By this time I figured she must have seen that sign. I tried to answer truthfully without telling Mom anything. I didn't want her to call that man to come take Fluffy away.

I knew Fluffy was supposed to be dangerous, but I didn't care. Lots of people are dangerous, too. Why didn't anyone come to take my Dad away? Anyway, I know who my friends are.

The next day was Dad's last visit. It was also Fluffy's last day with us.

Dad pulled up like usual that morning. This time Mom told me to wait and say hello to him first before he

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was too drunk, and then take Fluffy and go for a walk.

"Hello, boy," Dad said as he got out of the pickup. "Ya goin' to be nice to yer old man for a change?" Dad was real drunk already. I should have known by how he was weaving when he drove in the driveway and just run away. "Well? What you doing just standin' there? Come over here, boy!" He'd stopped in the middle of the driveway.

"OK, sir," I said. Dad looked mad about something. I didn't know what. With him it didn't matter. When he was living with us, I always got it no matter what it was that set him off.

I knew I was going to get it now.

Fluffy came out of the garage through the people door which was open just wide enough for a cat.

"C'mere, dammit!" Dad yelled at me.

I didn't know where Mom was. She should have been out there making Dad stop. She knew what was going to happen. I took a step away from him. I didn't know what to do.

I was so scared.

Then Fluffy ran at Dad and jumped on his leg. He sank his claws in deep and he started biting. Dad was jumping up and down and swearing and trying to swat Fluffy off.

It got all confused after that.

Fluffy let go and landed on his feet. He hissed at Dad who was still spinning around, like he wanted Dad to see where he was. Dad spotted him, let out a yell, and started chasing Fluffy.

Fluffy ran back into the garage the way he'd come, with Dad close behind. Dad flung the door open and jumped inside. I saw something splash on him there in the doorway. He said, "What the (he used the F word)!" I saw the stove burner light up and a line of fire coming toward Dad.

Then Dad went FWOOSH.

Dad looked just like one of those balls of flame people turn into on TV shows when they burn up. Somehow the door closed and I couldn't see him anymore, and Fluffy came tearing out of the garage through his cat hole.

About then I noticed that there were sirens going, and a police car pulled up in the driveway, and right behind it was another regular car and some guy got out and came running toward me.

Mom got to me first and was holding me tight. "Oh, Joey! Joey! I saw what Dad was like. I stayed in to call the police. I was so afraid they wouldn't get here in time!"

Smoke was really pouring out of the garage by now and the two policemen ran right past us and tried to get in the garage, but the door was locked. They tried the stall door but it was stuck. Then Mom remembered to tell them what the push button code was for the opener, but that didn't work either. So they broke down the people door finally, but more smoke poured out and I guess they couldn't see anything in there.

I could hear the sirens of fire trucks on the way.

That other guy who'd pulled in with the police hadn't even stopped to talk with me and Mom, just ran past us when the police did and kept going. He came back the same time the fire-

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men got there, and asked Billy if he was me (Billy had come over when he saw the smoke). Billy set him straight and kept watching the firemen get their hoses going.

The man waited until the police were done talking to Mom and me, then he said, "Hello. I'm Jeff. You're Joyce Reynolds?"

Mom said she was and told him I was Joey.

"The cat got away," he said. "I chased him for two blocks, but he knows who I am. He won't be coming back."

"You wanted to take Fluffy away from me!" I said.

"Joey! Behave yourself," Mom scolded. "I called Jeff yesterday to ask him about Fluffy. No one is going to hurt your cat."

"I'm afraid your son is right," Jeff said. "I *would* have taken Fluffy away. And I would have killed him."

Mom didn't know what to say, but I said, "You *see!*"

"Let me explain," Jeff said. "I love cats. My daughter loves cats, too. I'm a bioengineer. I invented cats like Fluffy. The first one was called 'Puff.' These cats stay little like kittens for years, then at the end they grow up and live like adult cats for a few years. But when they're little they learn really, really fast, like ordinary kittens. Only they have years to keep learning. They get really smart."

Just then the paramedics came out of the garage with something under a sheet that smelled like burned meat. It was Dad. Mom couldn't look at it. She went inside. I said, "Fluffy never liked Dad. Dad kicked him."

"In my case, Puff hated a local stray dog," Jeff said. "It was a nasty mutt. Puff set a trap for it. But he used my daughter for bait. That's why I have to kill these cats. They don't love us the way we love them."

Jeff told me to call if Fluffy came back, but he didn't think Fluffy ever would. Fluffy would know better.

The firemen looked around the garage after the fire was out. They said they thought the stove must have been on when Dad went in. They also said there was a plastic food dish on the floor by the door that they think must have had gasoline in it.

Fluffy knew about gasoline. He knew where I got it from for my bottle—from the can in the garage we use for the lawn mower. He must have set the dish up to fall when Dad came through the door.

Jeff was right. Fluffy never came back to the house.

That all happened last year. I still hike down the train tracks and back into the woods, and I still build fires out there. Raymond moved away, but Billy and Blacky sometimes join me.

So does Fluffy.

We roast hot dogs and marshmallows, and me and Billy talk about what we want to be when we grow up. Fluffy just enjoys his marshmallows and watches us.

Him and those three cats just like him. ■

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Pastwatch: The Redemption of Christopher Columbus, Orson Scott Card, TOR, $23.95, 351 pp. (ISBN: 0-312-85058-1).
Reclamation, Sarah Zettel, Warner, $5.99, 464 pp. (ISBN: 0-44660292-2).
The Transmigration of Souls, William Barton, Warner, $5.50, 431 pp. (ISBN: 0-446-60147-5).
Fantastic Alice, Margaret Weis, ed., Berkley, $12, 291 + x pp. (ISBN: 0-441-00253-6).
Oi, Robot, Edward L. Ferman, ed., Mercury Press (143 Cream Hill Rd., West Cornwall, CT 06796), 175 pp. (ISBN: none).
Sensuous Debris, Bruce Boston, Dark Regions Press (P. O. Box 6301, Concord, CA 94524), $8 (tp), $40 (cloth), 96 pp. (ISBN: 0-9626708-8-X).
Highcastle: A Remembrance, Stanislaw Lem, transl. Michael Kandel, Harcourt Brace, $22, 146 + xii pp. (ISBN: 0-15-140218-3).
The Friendly Guide to the Universe, Nancy Hathaway, Penguin Books, $13.95, 462 + xviii pp. (ISBN: 0-14-015381-0).

I like most of Orson Scott Card's work. It is thus a pleasure to be able to tell you he has another book out. Among certain audiences, it may even be his strongest yet, for **Pastwatch: The Redemption of Christopher Columbus** brings Christianity to the Americas shortly before Columbus's arrival and thereby saves the world. It may thus be the most explicitly Mormon science fiction novel that Mormon Card has ever written; certainly it has some very Mormon touches.

It is also an exceedingly idealistic novel, for Card begins with the notion that we are destroying our world. Indeed, the story opens after world population has crashed to a mere 700 million and humanity has, bleeding but enlightened at last, turned its efforts to trying to undo the damage to farmlands, jungles, oceans, and more. In the process, humanity has come to think it knows how it got into trouble: History is a tale of greed and rapaciousness, of slavery and abuse, of blindness and intolerance, that gained huge momentum when Columbus brought Europe to the Americas and allowed its demons to feed.

How does humanity know so much? It has its historians and philosophers, of course, but it also has a device that permits the members of the Pastwatch enterprise to

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see the past, to follow lives, to watch one thing make another happen, to follow backward to witness what factors are responsible for tragedy. At first, Pastwatch is merely passive, recording the truth for the sake of truth and understanding. But then Pastwatchers Tagiri and Hassan, watching a victim of the Spaniards die, hear that victim claim to see *them* and lay a geas of responsibility upon them. The link to the past can apparently, under certain circumstances, work in both directions.

For Tagiri and Hassan, this gives Pastwatching a new meaning. Is there, perhaps, some hope of influence? Might they, for instance, turn Columbus aside from his voyage?

Apparently not, for their own daughter discovers that Columbus turned aside once from a wish to free the Holy Land because he saw a holy vision that commanded him to sail west. And that vision was a sending from another Pastwatch, apparently trying to change their own history of disaster.

What disaster? It is hard for people to see past their biases, but Pastwatchers—especially Tagiri, Hassan, and Diko—are willing to listen when Hunahpu comes to them to argue that the Mesoamericans were on the verge of iron and large ships. It would surely have been only a matter of years or decades before they discovered Europe, allowed their own demons to feed, and built a world-spanning empire based on profligate human sacrifice.

Pastwatch now knows it is possible to send objects back through time. It sets physicists to work to develop the necessary technique. It also struggles with the questions of how to prevent both disastrous histories, and of whether anyone has the right to undo the joys as well as the sufferings of all the billions who have lived and died since Columbus's time.

These are clearly not easy questions, but they are surely interesting ones, whether you wind up accepting Card's answer or not. They are especially interesting because of the characters Card uses to analyze them. Columbus, who believed himself to be touched by God, was a man of colossal determination and charisma. Tagiri and Diko are less impressive only by comparison to him, for they have much more determination and charisma themselves than most of us.

Unfortunately, I found Card most convincing while he was posing and analyzing his problem, not while he was solving it. It seemed to me that he ignored the fact of history that new variations on old creeds never sweep the stage without violence, sometimes exceedingly bloody violence. His characters are potent, yes, but they win far too easily—unless one is willing to posit that God is, after all, on their side.

I suspect that is just what Card posits here, and the God he has in mind is the Mormon God who could speak of iron in Mesoamerica and leave records on metal sheets. At least, Card makes more sense to me than Joseph Smith, and perhaps his approach would be more likely to lead to the utopia of which he dreams.

Do you remember E. C. Tubb's Dumarest series? The hero, Earl Du-

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marest, had as a youth left Earth for a galactic civilization of immense variety and frequent decadence. Later, when he decided it was time to go home, he discovered that no one knew where Earth was. In fact, the idea of a planet where humanity might have originated was something of a fairy tale. Through book after book, therefore, he sought clues. He also had numerous adventures, demonstrated that native Earthers were indomitably tough, and fled the Cyclan, an organization whose members believed in the supremacy of electronic thought and were steadily extending their political and economic dominion over the many worlds of humanity.

The series was fun, but it had definite weaknesses—it was simplistic and glandular, and it was frustratingly drawn out. Indeed, Dumarest never did get home. If you wished for a more thoughtful, shorter version of the tale that actually reached a conclusion, you were plumb out of luck—until now.

What's that, you ask? Is Tubb back in business? Well, no. But Sarah Zettel has gone at some of the same basic notions in a way that Tubb never did, and perhaps in a way that C. J. Cherryh might have if the thought had occurred to her.

Zettel's novel is **Reclamation**. It opens with an attempt to deliver a shipment of contraband—a woman stashed in a suspended animation capsule—from the world known as the Realm of the Nameless Powers. It is clear immediately that a group known as the Rhudolant Vitae has a powerful interest in this world and its inhabitants, and then the Vitae appear, slaughtering the ship's crew and hijacking the capsule.

What is going on? Meet Eric Born, reporting for a Vitae assignment. We quickly learn that he is from the Realm and has talents that have made him useful to the Vitae in the past. Now he is shown into a room with a woman of the Realm and ordered to translate for her, tame her, make her cooperate. He is not happy. Nor are the Vitae when he overpowers his guards, smashes every lock in his way, and escapes with the woman.

The woman is Arla Stone in the Wall. She carries three namestones. She is a Notouch, a member of the Realm's lowest caste. She recognizes Born as a high-caste Teacher who fled the Realm years before. There is mention of the Aunorante Sangh, the "shameful blood," the enemy from whose finding Garismit, the Servant of the Nameless Powers, long ago removed from the Realm.

It is not long before we learn more of the Vitae. They are dominated by rules, order, bureaucracy, quite enough to make one think of machines and the Cyclan. They are also driven by a quest to find the original home of humanity, the Evolution Point, Earth, and reclaim it from a group *they* call the Aunorante Sangh. They think they have found it in the Realm, even though the Realm occupies a clearly artificial orbit about a star that is not at all our familiar Sol. And, analyzing the genes of the Realm's occupants, they have discovered that they are genetically engi-

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neered constructs, "artifacts," not people at all (no matter what *they* think), and their construction is so subtly intricate that it is quite unmatchable. They—or their ancestors—were made in a much earlier time.

Now the Vitae are shifting all their efforts toward the Realm. They announce their claim to all other human worlds, openly defying precedent and intervention. They are hunting Arla and Born, determined to take these two artifacts apart to see how they tick. They are landing on the Realm, provoking war, salivating at the thought of the things they will be able to do once they have consolidated their claim on the artifacts there, discovering caverns filled with mysterious objects, including things like Arla's namestones, all half alive, all awaiting the right touch to awaken and serve.

But Arla and Born are loose. They are fleeing, dodging, wriggling out of traps. Arla is revealing that her stones have been handed down from mother to daughter, generation after generation, from the Notouch who assisted the Servant Garismit in the moving of a world. There are hints that Born is the new Servant, which the Nameless Powers had promised they would send at need. And . . . .

You get the idea, I'm sure. This one has scope and sweep, intrigue and grandiose technologies and grand adventure, culminating of course in salvation for a people.

But wait. Are the inhabitants of the Realm really people? Or are they mere "artifacts"? Yes, they were once made for use, and they once worked beside their makers with great joy. And then. . . .

Well. "Work is joy," the Nazis told their prisoners, and of course it is as long as the work is freely embraced. As soon as the freedom is gone, so is the joy. And here is Zettel's point, a light-year beyond anything that Tubb ever thought of: People are not just tools, not even if they have been given special skills, whether by training or by genetic engineering. They are not "artifacts," not things. They have their own destinies quite apart from those who have shaped them, from parents, teachers, and engineers. Those of "shameful blood" are all those who would insist otherwise, and perhaps that term is a special dig at parents.

Sarah Zettel is a writer to watch.

William Barton's **The Transmigration of Souls** has a problem: The book is two stories, both of them interesting, and it changes its mind about which of them is paramount. The story touted on the cover is the one with which the book starts: Here is a world dominated by Arabs and Chinese, Europe in eclipse, America hiding behind a wall of astonishingly high-tech isolationism ever since it abandoned its Moon base in apparent flight. Now the Arabs and the Chinese are mounting their own space programs, each aiming for the Moon and the empty base. They launch, using technology a bit better than the old Apollo program had, but as they approach the Moon, America broadcasts a territorial claim and warns off tres-

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passers. America also launches a ship, crewed by immortals who have resculpted their bodies along monstrous, bizarre, and priapic lines, that can reach the Moon in mere hours.

The Arabs and Chinese land, dash for the empty base, and discover an alien portal to what look like distant worlds. As the Americans destroy their ships, they flee through the portal, finding the base the Americans had once occupied amid some very strange ruins, discovering notes left behind that speak of Colonials and Scavengers that had long, long before also explored the portals.

Meanwhile, the American crew is pursuing. Its commander, Sergeant-Major Astrid Kincaid, was among the Americans who fled the Moon; she has yearned ever since for alien worlds and the lover, Dale Millikan, who stayed behind. From her, the reader learns that what prompted the flight was the discovery that use of the portals awakens and attracts a "Spacetime Juggernaut" that destroys the users and their worlds, and even worse, their entire universes. America fled with its stash of Scavenger and Colonial technology when it realized what was already on the track. And now Kincaid is receiving increasingly hysterical orders from back home to catch the Arabs and Chinese, destroy the base and portal, and come home.

Yet the portals do *not* give access to other worlds. They are gates on other universes in a multiverse of all possible universes, and possibility is limited only by the author's imagination. Thus Kincaid's pursuit moves quickly from a world of all-too-real dinosaurs to ones of fiction, both future and past (Barsoom and Pellucidar and Riverworld), the connection made only slightly more acceptable by having Kincaid's lost lover be a science fiction writer whom the Juggernaut has assigned the task of probability manager, or god. Almost all thought of return, of survival-oriented adventure, is set aside as Barton shifts his attention to the exploration of the worlds he has borrowed, the nature of the multiverse, sex roles, and a god who really does care about the loose ends he has left behind.

Is Earth destroyed? In the multiverse of possibility, of course it is, of course it isn't. Does Kincaid find happiness? Does Ling, the Chinese lech whose name is surely a deliberate reflection of a certain Hindu word, find sexual satisfaction? Of course, of course not. There is thus a lack of resolution that seems bound to disappoint those who buy the book expecting the rousing adventure promised on the cover.

And perhaps that is the true problem. Barton has really followed the implications of his premises quite faithfully, shifting stories as seemed necessary to him. If that means reader's expectations are not fulfilled, so be it; perhaps their expectations, conditioned by years of more formulaic tales, are too limited. At least he gives them wondrous technowizardry and a quite impish sense of humor that can tell us straight-faced that in Chinese Dale Millikan's name comes out as "Thimble Valley."

May I call your attention to a mar-

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velous anthology? Margaret Weis must have been bitten by a dormouse, or perhaps by the Mad Hatter, to think of it, but whatever the reason, think of it she did and we're the better for it if we can just run twice as fast to stay in place and keep up with it. Get it?

I certainly hope so. The book is **Fantastic Alice**, and it contains seventeen stories by the likes of Esther Friesner, Lisa Mason, Janet Asimov, the late Roger Zelazny, and more, all of them bringing Lewis Carroll's imaginings of rather pointed nonsense into the modern world. For Lawrence Watt-Evans, this means the Cheshire cat in a pet carrier. For others, the point is the academic pursuit of meaning and consequent destruction of joy. For still more. . . .

Oh, bother. Why don't you just slide down a seat, pour yourself a cup of tea, bite the dormouse's tail, and bash the raven with the writing desk if his croaks disturb your reading.

Sometimes the competition has good ideas: For many years, the *Magazine of Fantasy and Science Fiction* ran competitions in which the editor asked readers to come up with such things as science-fictional Burma Shave signs or new Feghoots or SF titles warped by the addition of a single letter or future fads. Now, in the fullness of time, we have a collection of the results: **Oi, Robot**, and guess what contest provided the title.

It's cute. It's fun. Some of it's clever. Some of it's funny. Some of it's so remarkably dumb that you may prefer the cartoons interspersed among the pages. The whole thing is perfect for a short plane ride, a doctor's waiting room, or perhaps a gift for a fannish friend. Just: Best be safe/Instead of sorry/Buy two copies/One for borry.

Sorry!

Bruce Boston's latest, **Sensuous Debris: Selected Poems 1970-1995**, gives a nice overview of his poetic career and includes a number of poems I have called attention to in previous reviews (e.g., that series that plays with the disadvantages of being the wife of a shapeshifter, a devil, an angel, a telepath, a ghost). His ear for sound and image is as acute as ever, and it is possible to detect a keen sense that Boston laments what has happened to our pursuit of the sfnal destiny in poems such as "No Longer the Stars": "In days of bears and eagles . . . we wired the falling sky with instruments of terror, the hemispheres with hate. [Now] the art of flight is lost [and] there is no longer a curious ear pressed upon the stars' sure static."

That is, Boston is not just a sonorous imagist. At times, he is also a thought-provoking geopolitical critic. And that is something for which the best poets have always striven. However, if I move you to support his efforts, bear in mind that Dark Regions has printed only 276 copies (250 trade paper, signed, and numbered; 26 clothbound, signed, and lettered A to Z) of this little book.

Twenty years ago, Stanislaw Lem first published **Highcastle: A Remembrance** in his own tongue, Polish. Now this memoir of a childhood

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between the World Wars is available in English, and it is a thoughtful, thought-provoking treat well worth your attention.

Lem is known as Poland's greatest gift to science fiction. His tales are marked by a wry and inventive reflectiveness that is not to everyone's taste (not always even to my own) and that shows even in this autobiographical memoir. Here he is trying to be faithful to memory, not to color it by wishful thinking or excessive interpretation. Growing up in Lvov, once part of Austria, then a city in Poland, now in Ukraine, he was, he says, a monster who "terrorized those around me. I would agree to eat only if my father [a laryngologist] stood on the table and opened and closed an umbrella." His toys and numerous other household artifacts fell prey to his hammer and destructive urge; a favorite music box he spoiled by peeing into the works. Later he collected the remnants of dead technologies, built radios that—quite deliberately—did not work and were thus a sort of art, invented ingenious gadgets that he then discovered had been made before, and designed the "authorization" structure of a fictive bureaucracy. Unconventional, bookish, ingenious, creative, he was as doomed as many another nascent science fiction writer. And then, in his teens, the Nazis heaved over his horizon. He notes the deaths of friends, classmates, and cousins, the ruination of a way of life, the transmutation of his past—all pasts, really—into ruins now knowable only by imperfect memory.

How much did his childhood and the nature of its ending have to do with the sort of writing he turned to after World War II? Perhaps one sees clues, but perhaps one is only fooling oneself; critics do that frequently. Yet there does seem a pervasive arbitrariness—those radios, that bureaucracy, the ineffective, wasteful training the young men suffered as the shadows deepened, the fall of order—that echoes through his later works.

And if he is only imposing that arbitrariness on imperfect memory, well, he warns us early on that it is impossible for the older man to tell the child's life through the child's eyes alone. The man interprets and colors even—perhaps especially—when he is trying hardest not to do so.

Nancy Hathaway's **The Friendly Guide to the Universe** is precisely what it calls itself. It is not a textbook, not a reference work, in no way exhaustive or complete. It's a breezy once-over-the-high-spots-lightly treat. It serves up a little of the mythology associated with the stars and planets, gives us some of the history of astronomical discovery, and tells us just enough about the ideas people have developed about the Solar System, Galaxy, and cosmos to let us feel we have a nodding acquaintance with one of the more fascinating areas of intellectual inquiry. Nor does Hathaway neglect the people involved, with special attention to the women, one of whom (Cecilia Payne-Gaposchkin) was once called "the best man at Harvard"!

The general approach is not far off that used by Isaac Asimov in the sci-

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ence articles for which he was so well known both in and out of the SF community. It's a little less detailed, a little less stiff, but it is just as clear and simple, and Hathaway seems quite as good a demystifier. It's nice to see the tradition being carried on. ■

IN TIMES TO COME

A complaint often heard these days is that there's not enough "sense of wonder" in today's science fiction. In our next issue we begin a new novel by Robert J. Sawyer that ought to lay that complaint to rest for quite a while. *Starplex* is quite an impressive structure in itself: a ship in some respects more like a world, on a voyage of exploration using a radically new method recently discovered but at best dimly understood; but that's just the beginning. Its crew, humans and aliens alike, know they're looking for something big; but what they find (or vice versa) is far beyond any of their expectations (and incidentally answers some of the biggest riddles of all). Next month I can promise you an opening with what just may be the most mind-boggling cliffhanger I've ever seen at the end of a serial installment—and after that, it just keeps getting bigger and better.

As does the July issue itself—which you might consider a John W. Campbell Memorial Issue, this July marking the 25th anniversary of Campbell's death. I think John would like it, from Jim Burns's cover to the "matched set" of novelette and fact article by Tom Ligon: a story about a scientific "amateur" succeeding where the "establishment" has failed, inspired by some real work Tom has been observing. Plus, of course, a diverse assortment of other tales by such writers as Doug Larsen, Joseph H. Delaney, Bud Sparhawk, and Pauline Ashwell.

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Dr. Cramer,

One of the benefits of reading a science fact article in a speculative fiction magazine is that the mind is already geared for imaginative solutions to difficult problems. One of the disadvantages of getting most of one's current science from that source is that it's a hell of a lot easier to ask "why not?" than to answer it, so forgive me if my following questions have "obvious" answers—I just don't have the science to see them.

First, since I am getting the information on gamma ray bursts from your October '95 *Analog* article, it's easy for me to ask "Why isn't one of the possible solutions proposed in the 2,000 or so papers that we are intercepting communications packets?" Is this because of fear of peer ridicule, or is there an obvious fact that I've overlooked? Keeping in mind my ignorance of this area of physics, here are some potential arguments against it and my responses to them:

A) Way too much energy is expended for mere communications purposes.

R) Sure, if we're talking about the rim of the Galaxy and an omni-directional burst, but what if they are:

a) 25-1,000 AUs away, and

b) a very tight beamed laser-like signal (a gaser or graser?).

A) Why would they be so close, *and* pointed at the Earth (from *all* directions, too!)?

R) Why not? How about a scenario where the Oort cloud is colonized, but the Solar System is off limits. The communications could be from trade ships or robot probes coming and going in any direction. They could even be the "cosmic boom" of a ftl ship entering or leaving real-time space on a course directly to or from our system (hence the tight beam and consequentially lower burst energy required for the signals we receive). As far as that goes, they could be anywhere within the scope of your article, and all we're seeing are the historical wakes of the transitions upon whose axis (axes?) we lie.

A) You can't get that magnitude of gamma radiation in a small beam without destroying a planetoid.

R) What would a "light expert" of the last century say about the feasibility of the coherent light coming from a modern laser or particle beam, when analyzed with the accepted science of his time? Would he equate it to burning down all of the forests on Earth just to send the light beam?

A) They aren't messages, they're too short.

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R) Actually, there is a lot of information in there including burst length, signal strength, direction, spectral spread and distribution, and strength within that spread. I'll bet you could come up with a few other ways of encoding/extracting information using the bursts that we've received. Maybe they are "send again, we didn't understand" messages from the Galaxy in response to our atomic testing (etc.) since the 1940s. (Granted, we'd be limited to about 25 light-years so far, but that's increasing daily, hence the new signals every day). If gamma bursts are standard communication for the rest of the Universe, then SETI may be looking for the wrong kinds of signals.

. . . And on the other side of the coin, why eliminate binary neutron star spin-down and merger over the spectral distribution? What if they started out with thermal distribution and passed through a filter which absorbed the missing energy? What kind of properties could we imagine for our missing "dark matter" in the Universe to allow it to act as just that kind of filter? (After all, in the past, two separate problems turned out to be each other's solutions more than once.)

And, finally, if the serious scientists won't consider these possibilities, I think I'll write a story incorporating some of them. I'd hate to look like a total idiot, though. Are there major flaws in any of my arguments?

Keep up the great writing about great ideas.

Bob Faw

2348 N. Sterling, #431
San Bernardino, CA 92404

Dr. Cramer replies. . . .

Dear Bob,

Your idea is interesting. As you might suspect, astrophysicists are strongly inhibited by peer pressure from suggesting that any observed phenomenon might be taken as evidence of intelligent action. Therefore nobody has suggested in the literature that GRB might be message transmissions. But in any case, I see some problems with your idea in addition to the ones you mention in connection with the message scenario.

1) The detected GRB have energy densities around 6.3 MeV/cm^2, and in a few cases have been simultaneously detected by very widely separated space probes. I don't know what the lower limit on the beam area is, but I'd guess that it's about the area occupied by the Earth's orbit. This would mean that a minimum of about 7 x 10^{16} joules of energy are contained in each burst. That's too much for a message, I think.

2) No GRB have been observed to repeat from the same direction. It's hard to imagine why this would be the case if they are messages.

3) The gamma energy distribution and time profile of GRB is not consistent with a "graser" output. In particular, gammas with energies up to 25 GeV or so have been detected in some bursts, while the average energy is less than one MeV.

4) No matter how you slice it, the isotropy of the GRB distribution is a big problem. It's hard to imagine that messages or "cosmic booms" from an

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intelligent species would not betray some preference for spatial locations. I think they'd have to work very hard to make a distribution as uniform as that which is being observed.

Anyhow, I encourage you to write the story you mentioned. One of the primary reasons that I write the columns is to attempt to feed new and interesting ideas to writers who might do stories based on them.

JOHN G. CRAMER

Dear Editor,

I have read Robert Zubrin's science fact article in the November 1995 issue of *Analog*. His idea of landing supplies and equipment well ahead of the human landing party seems inventive. For the most part I like his ideas. He proposes that we explore and colonize Mars. Let's do it.

However, I don't think we can hope to solve Earth's population problem by exporting people to Mars. Much has changed since Frederick Jackson Turner announced his famous thesis. In America during the seventeenth and eighteenth centuries, a landless working man could get land merely by moving into the bush. At first the frontier required no capital and very few skills. Energy and courage were all that were required. The land owners began letting land "fee simple" because they could not collect the rent. Feudalism was diminished, and America became a relatively democratic place.

Movement to Mars would not draw from the bottom of the American class structure. Rather the Martian calling would be for those who are especially literate and who have already mastered at least one high level skill. These are precisely the workers who are already in short supply here on Earth.

The population problem arises from high birth rates among those who have very few modern skills. Many of these people have not even heard of Mars and certainly would not desire to go there. Besides, if they went to Mars there would be very little they could contribute to a Martian labor force.

I say that the colonization of Mars cannot solve the Earth's population problem, but that is not to say that the Martian venture is useless or unwise. My guess is that Martian exploration would be challenging and stimulating from the start. The Earth's people will have to make other approaches to the population problem.

EDGAR L. SHERBENOU
910 Colby Court
DeKalb, IL 60115

Dear Stan,

Just read Mr. Towner's letter (November '95 Brass Tacks) and had to add my two cents worth.

Case 1: the infamous $2M lawsuit against McDonald's has been misrepresented yet again, this time by Mr. Towner. The reason the woman won her suit is that McDonald's did in fact give her overheated coffee—about 40 degrees Fahrenheit overheated. Seems that you (or in this case, McDonald's) can squeeze some more coffee out of the beans by heating the water to about 180 degrees F rather than the more common 140 degrees

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F. That extra 40 degrees F caused a much nastier burn, and *there was no way for the woman (or anyone else) to know that McDonald's coffee is 40 degrees F hotter than regular coffee.* I personally feel that $2M is a tad much, but maybe that's what it takes to convince a huge corporation that saving a little money on coffee beans by putting many if not all of their coffee-drinking customers at risk of "severe" burns isn't really a good idea.

I feel a great deal more sympathy for Mr. Towner's dismay over Case 2, although he seems to think that it is all right that the skylight is unsafe, since only a burglar was harmed by it this time. Or maybe he thinks that once someone breaks a law, all other laws no longer apply to that individual? So is it OK to speed up your car and try to run over a jaywalker? How about if a jaywalker gets hit by a car—does the car driver have no responsibility because the jaywalker was breaking the law?

On the other hand, here is a case that ought to make Mr. Towner and anyone else of similar outlook upset: a man at work goes to the cafeteria to get a soda from a vending machine. The machine eats his money and doesn't give him a soda. Either in anger or in hope of shaking loose his soda, the man punches the machine and breaks one or more bones. He then applies for Workman's Compensation and (at least eventually) receives it. Seems like he's being rewarded for punching the machine!

In fact, the reason that the man got Workman's Comp. was that 1) he was injured while at his place of employment, 2) the injury was severe enough to prevent him from working, and 3) he had *not* tried to injure himself intentionally. The moral(?) outrage many people feel about this story is due to a sense that "he brought it on himself" by doing something either stupid or inappropriate and/or that his injury was not particularly work related. Unfortunately (or from his point of view, fortunately) these are not issues that are (were?) considered germane in determining his case.

I guess that my biggest complaint here is that both of Mr. Towner's cases are misrepresented. In case 1 he even quotes the claim that the "coffee was too hot" but assumes that since all coffee is hot, the woman's actions are totally responsible for her injury. And in case 2, his statement that the burglar "should not have been burglarizing, and the fact that he received compensation for a negative act . . ." is bogus. The burglar did *not* receive compensation for a negative act, he received compensation for injuries received when the skylight failed. If he had been a roofer rather than a burglar, he could have received the same injuries and there would be no (or at least little) question as to whether compensation was warranted.

I know that this country is in a phase where less government, less regulation, etc., is the byword for the day, but I really worry that so many people seem to think that either our laws or our courts or both are silly or crazy more often than not. Especially when the evidence is deliberately (or inadvertently) biased to make the laws or the courts seem

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worse than they are really.

ALLAN R. MCCOY
Milwaukee, WI

Well, here's your "two cents worth," but the fact remains that even "regular" coffee is hot enough to require the same precautions that should have been used in this case. And your leap from the skylight and the burglar to the driver and the jaywalker gives new meaning to "far-fetched." The driver has a responsibility to avoid hitting anybody he can *avoid hitting, but nobody owes a burglar anything—and nobody would have known about a potential problem with the skylight if the burglar hadn't been up to no good. (Or do you want government inspectors constantly coming into all our homes to scrutinize everything done there?) The jaywalker's violation hurts no one but himself; the burglar's sole purpose in being where he was was to commit a direct offense against someone else. I hope you see the distinction.*

Dear *Analog*:

Someone made a rather unusual spelling or copyediting error in the Alternate View article on papermaking in the November 1995 issue: They put "calendar" when the correct spelling for that context is "calendEr." What is unusual about this is that it is the opposite of a far more common spelling error. And it brings up an interesting point.

Since most members of the general public don't do much writing about the technical side of papermaking, if you see the word "calender" outside the technical literature it is almost always a misspelling of the kind of "calendar" you look up dates in, not a piece of papermaking machinery. So if a copyeditor (or a computer spelling checker) blindly changes that "e" to an "a" they will be correcting the spelling of the list of dates far more often than they will be inserting an error into the spelling of the paper-finishing machine. So as long as we are using fairly primitive spelling checkers that don't "understand" context very well it may make sense to disallow the correct spelling of the machine in the paper mill.

I'm reminded of another case where one makes fewer mistakes by blindly ignoring data. Imagine a communications channel handling a stream of binary digits. And imagine that this channel is prone to occasional errors. About one time in ten thousand it will change a "1" to a "0" or a "0" to a "1." Now suppose that the data being sent has very few ones in it, say one in a million bits. If you look at the receiver output your error rate will be one in ten thousand. But if you scrap the receiver and in its place put up a sign that says "Always 0" your error rate will drop to one in a million. You've reduced your errors by a factor of a hundred by totally ignoring the data in favor of a blind assumption!

In real life there are ways around this if you can redesign the transmitting system to translate the data into more complex codes before sending it through the error-prone channel. But if you can't do that, the data you get at the receiver is useless.

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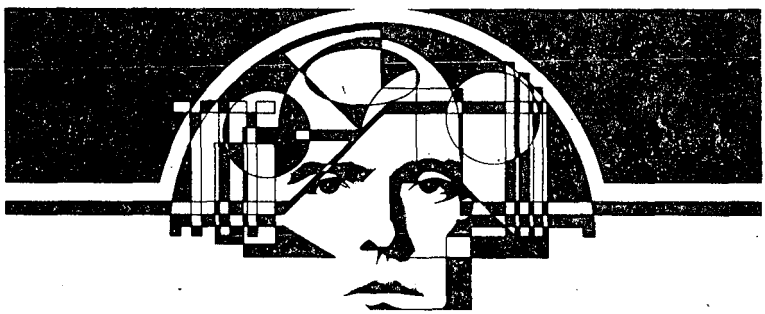
What is interesting about all this is that it applies in real life to things like UFO sightings, haunted houses, and the like. There may really be something to some small fraction of the reports, but that "signal" is swamped by the "noise" of crackpots and hoaxes to such a degree that most "rational" people would say the most sensible thing to do is to ignore the whole business and take it on faith that such things don't exist. I'm not claiming that such things as ghosts and UFOs exist. But I am saying that even if they do exist the most rational thing to do, from the standpoint of being right most often, may be to pretend that there is nothing there.

THOMAS G. DIGBY
Los Angeles, CA

On the other hand, your example might better be taken as an illustration of why it's less important to be right as often *as possible than to be right when it* counts! ■



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20–23 June
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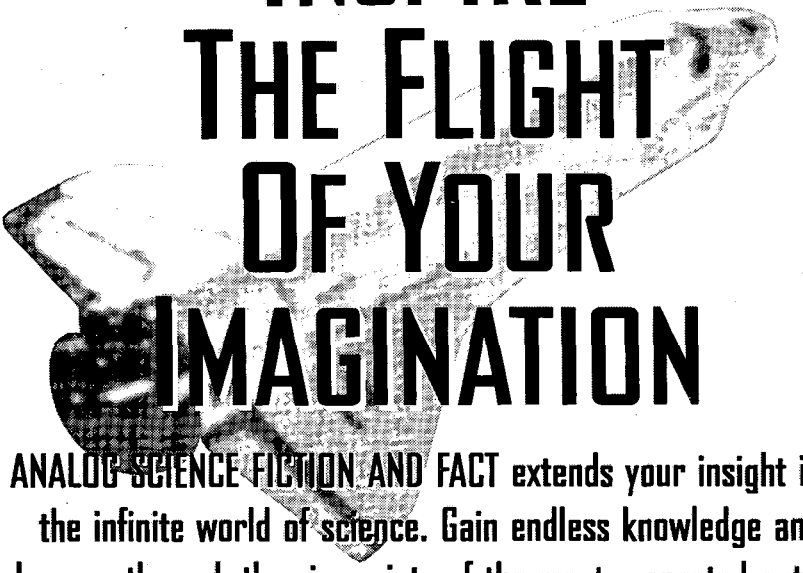

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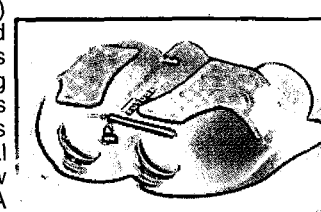

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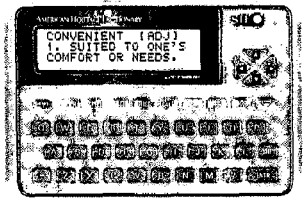

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